

# Secondary Pathways of Elimination

## SKIN, SINUSES, LUNGS, KIDNEYS, BLADDER

Rajko Bisevac ND, ABAAHP, FAARFM  
tel: 630-277-9169

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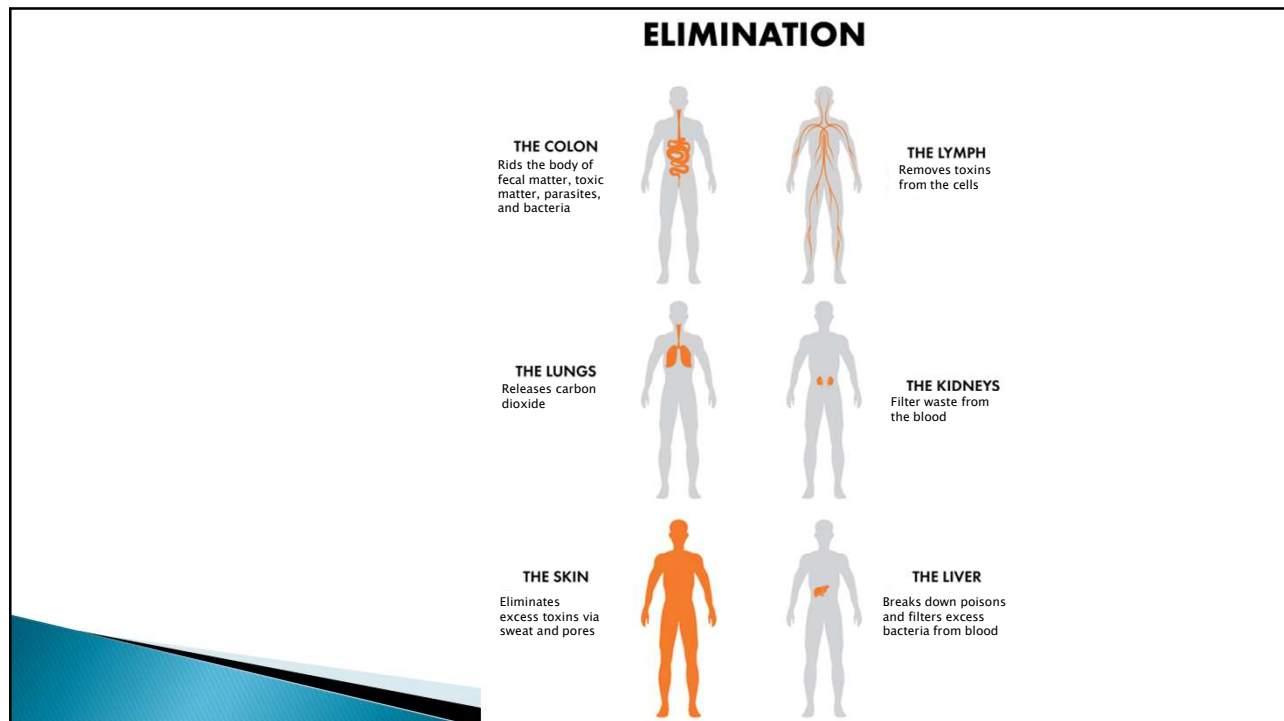
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## PLAN B, Redundancy

- ▶ When primary routes are overburdened, the body attempts to shed toxins by secondary routes.
- ▶ Optimal functioning of primary routes will prevent secondary routes of elimination.
- ▶ Organs of secondary routes: skin, hair, nails, sinus, lungs, kidney, bladder
- ▶ Secondary routes of elimination: nasal discharge, coughing, sneezing, ear wax, tears, hair, vaginal secretions, phlegm, mucus or blood in stool, gas

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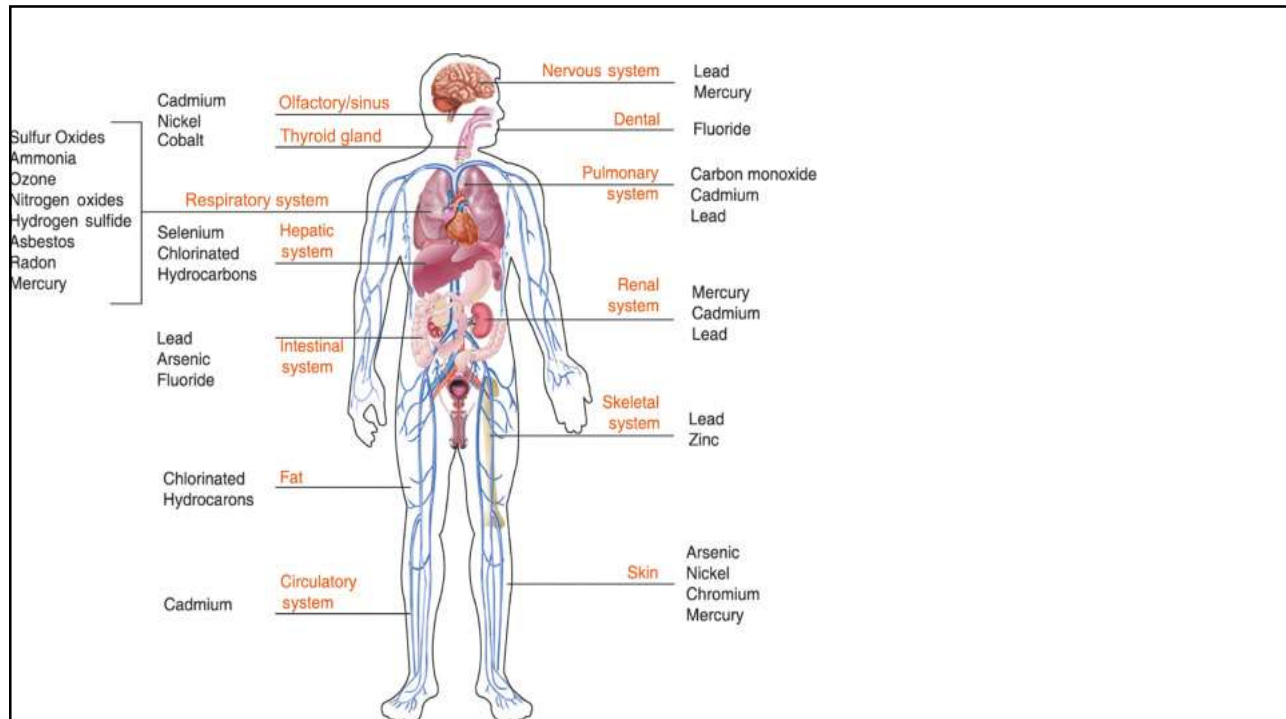


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**Common Traits:**

- In contact with the outside world
- Not direct part of GI System
- Exchanging material with the environment
- Able to absorb and eliminate toxins and medicines
- Sweat, breath, saliva, mucus, urine... all detoxification pathways
- PRIMARY pathways are healthy
- SECONDARY pathways are pathological
- Stinky feet or bad breath a sign that the secondary organs of elimination are doing their part, but not in ideal manner

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## Progression of Secondary routes

- ▶ 1. **Excretion**: diarrhea, runny nose, sweating, tears, joint pain, increased urination
- ▶ 2. **Inflammation**: fever, acne, bronchitis, urinary tract infection, acute infection
- ▶ 3. **Deposition**: toxins deposit into extracellular space
- ▶ 4. **Impregnation**: toxins in extracellular space become a part of the matrix and connective tissue. Allergies, migraines, tinnitus, autoimmune diseases, metabolic syndrome
- ▶ 5. **Degeneration**: toxins destroy large groups of cells within organ. Scleroderma, Alzheimer's, macular degeneration, diabetes

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## LARGE PICTURE: Connecting the dots!

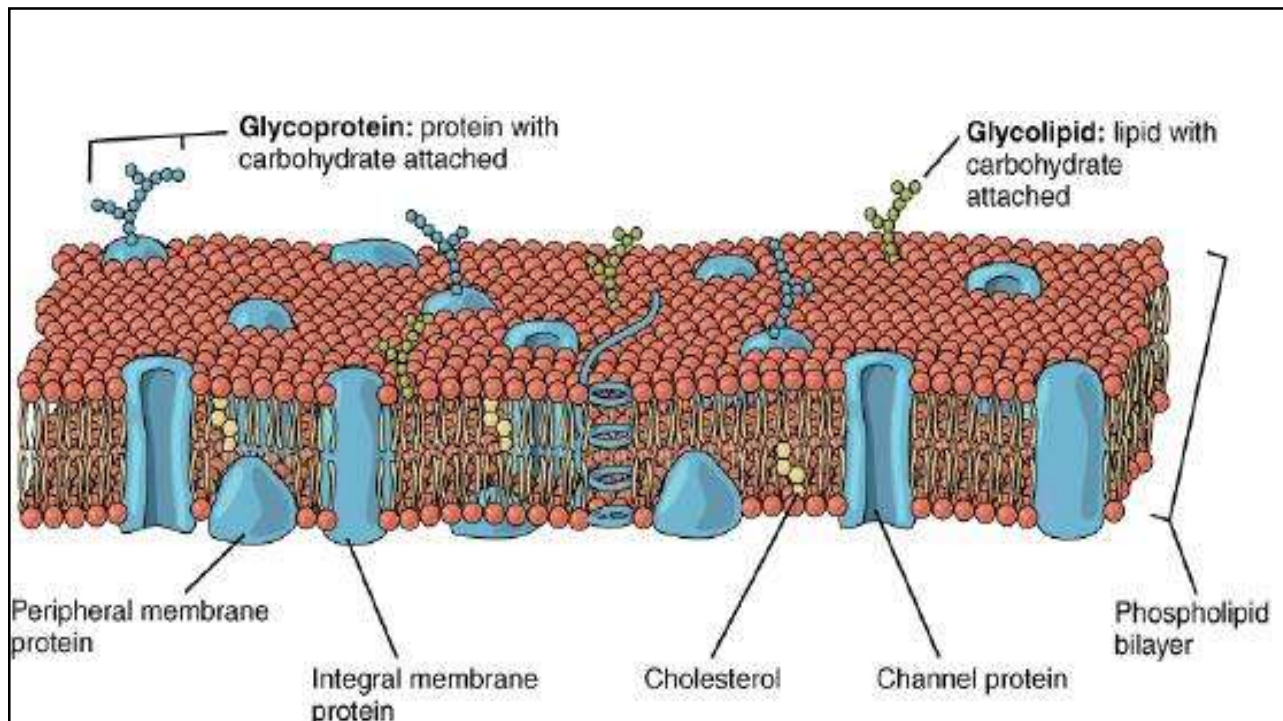
1. STRUCTURAL DAMAGE
2. NITRIC OXIDE
3. GLYCOBIOLOGY & GLYCOCALYX

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## LARGE PICTURE: Connecting the dots!

1. STRUCTURAL DAMAGE
2. LIPIDS
3. NITRIC OXIDE
4. GLYCOBIOLOGY & GLYCOCALYX

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## GLYCOCALYX

What is the role of the glycocalyx?

- ▶ The glycocalyx is an important constituent of blood vessels **located between the bloodstream and the endothelium**. It plays a pivotal role in **intercellular interactions in neuroinflammation, reduction of vascular oxidative stress**, and provides a barrier regulating vascular permeability. Sep 3, 2021

- ▶ **The Role of the Glycocalyx in the Pathophysiology of Subarachnoid Hemorrhage-Induced Delayed Cerebral Ischemia**

*Frontiers in Cell and Developmental Biology*

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8446455/>

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## GLYCOCALYX

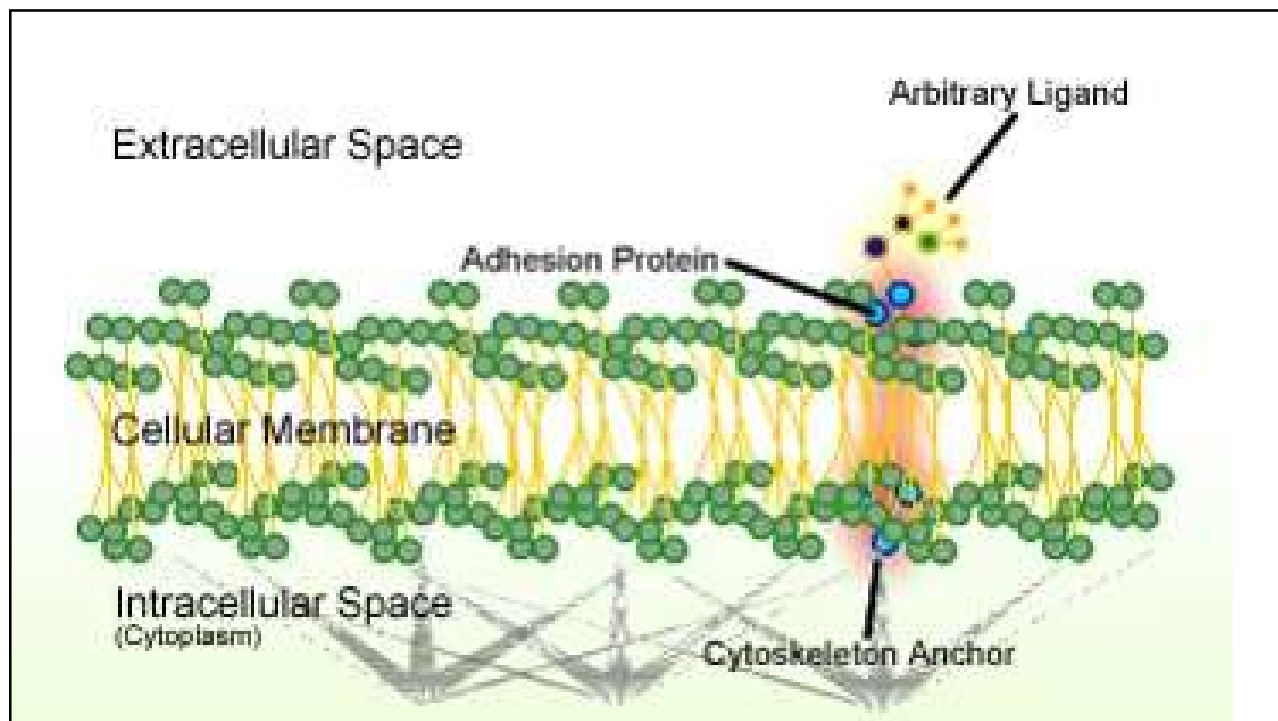
- ▶ The glycocalyx is polysaccharide composition of glycoproteins and glycolipids.
- ▶ Gel-like negatively charged filamentous structures acting as the protective layer of the endothelial cells found on the lumen side of the vessels. The glycocalyx acts as a molecular sieve allowing only selective molecules to enter or leave the vessels. In the prokaryotes, the glycocalyx prevents recognition and destruction of the bacteria by the immune cells.

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## GLYCOCALYX

- ▶ The glycocalyx comprises the **scaffolding glycoproteins** (mucins, selectins, adhesion molecules), glycosaminoglycans (Hyaluronan), and proteoglycans (heparin sulfate) associated with blood flow and blood components.
- ▶ Glycocalyx regulates the **movement of fluids** between the endothelial cells and functions as barriers to macromolecules. In addition to the filter function, the glycocalyx is involved in **cell-cell recognition**, adhesion, membrane bending, tabulation, and molding of the plasma membrane. Mucins are involved in tubulation and release of copious amounts of extracellular vesicles involved in carcinogenesis, tumor angiogenesis, and metastasis.
- ▶ Glycocalyx structural and functional **defects** lead to an inflammatory response in the blood vessels associated with vascular diseases including type 2 **diabetes, atherosclerosis and sepsis**.

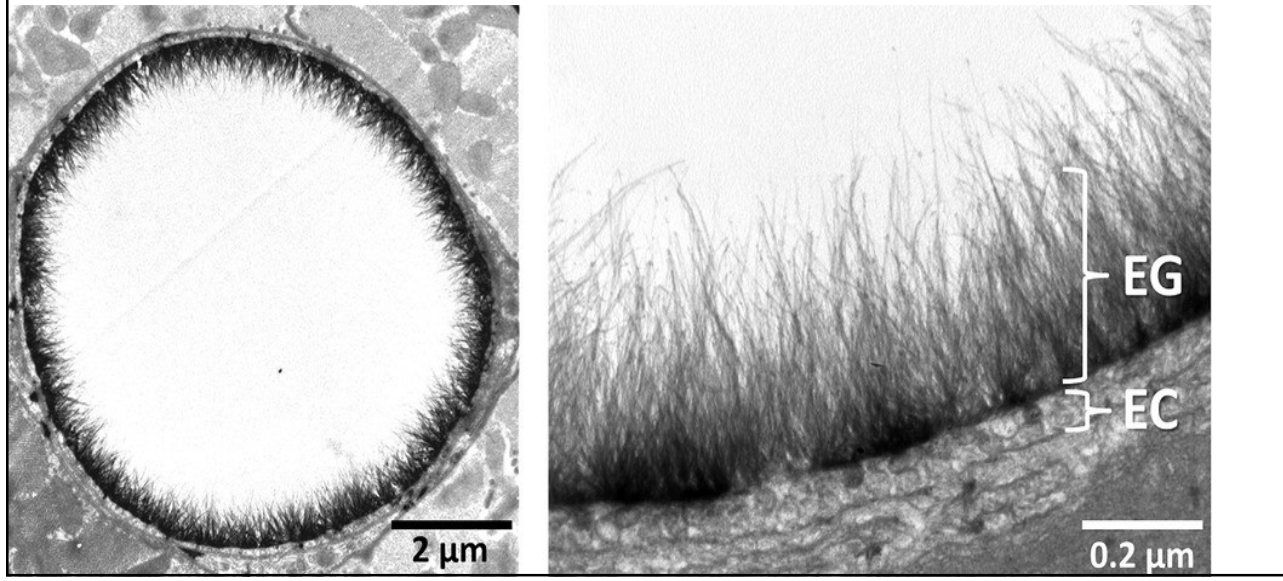
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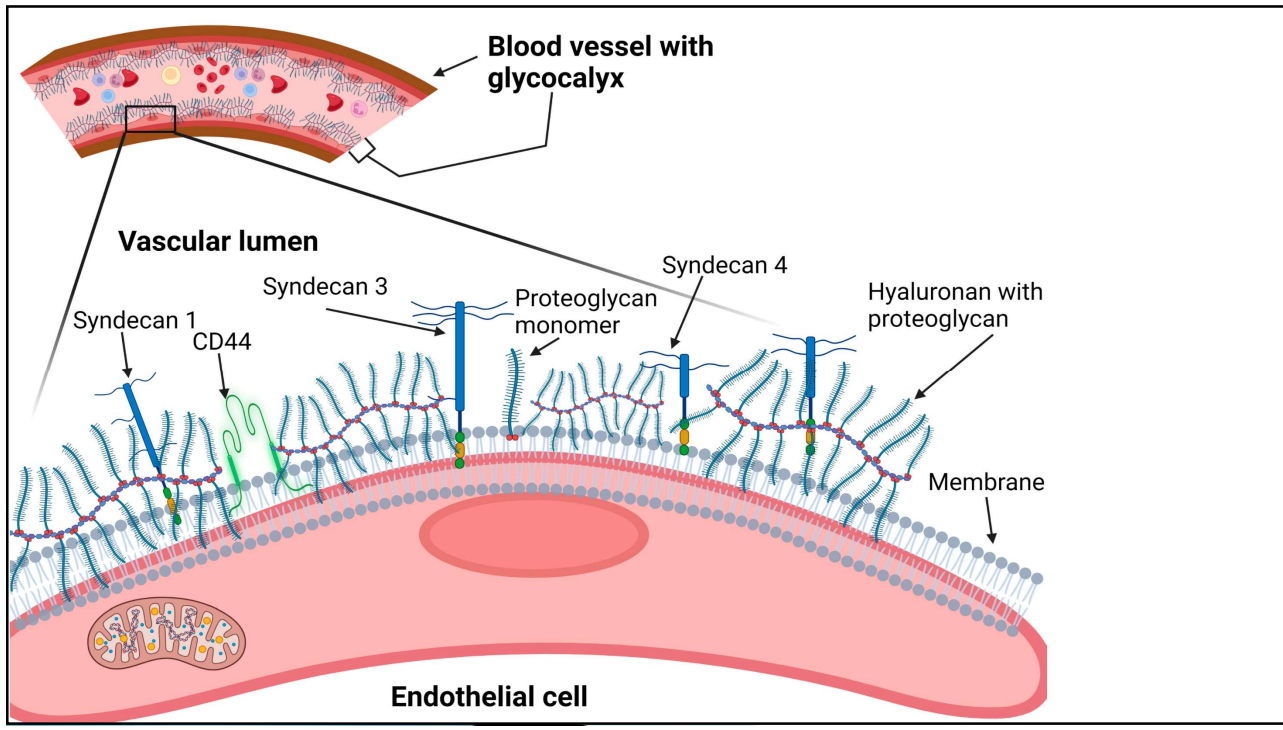
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### 3. GLYCONUTRIENTS & GLYCOCALYX



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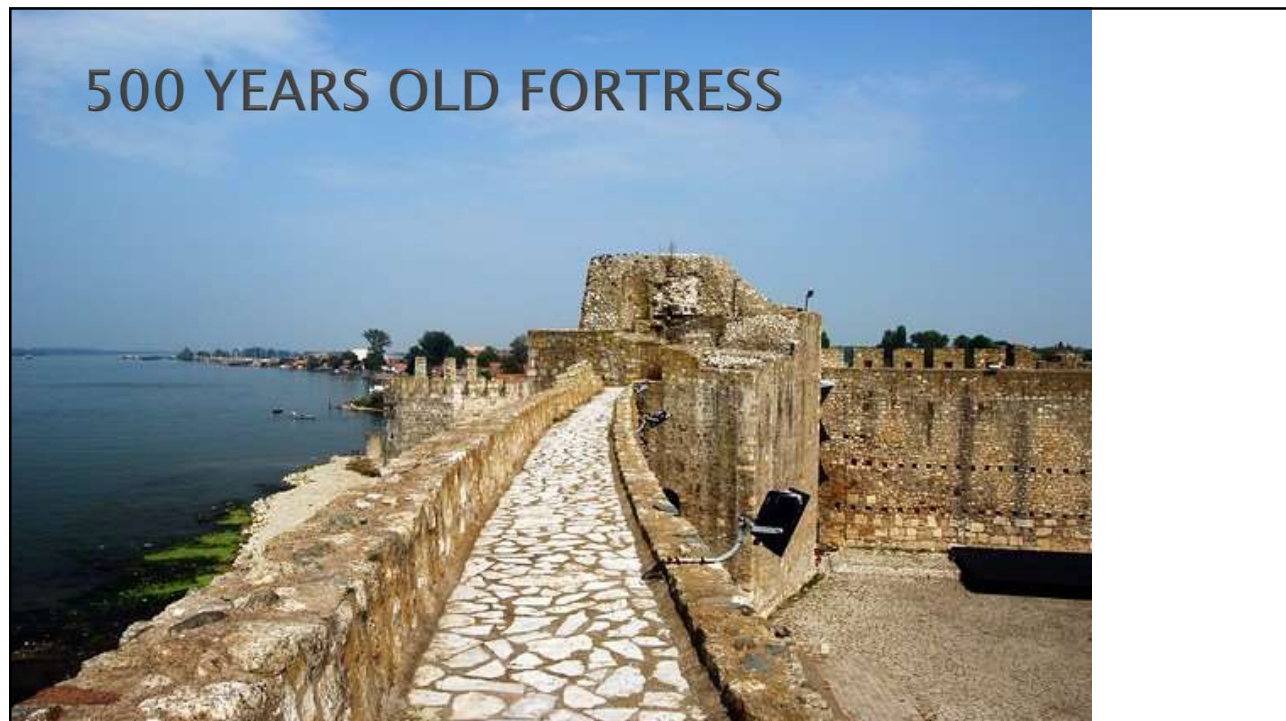
### ▶ Glycocalyx Structure and Function

- ▶ The eGCx is a protective barrier on the luminal surface of all blood vessels that serves many functions. The tertiary branching of [hyalurona](#) creates a selectively permeable interface allowing only small molecules, like water, electrolytes and nutrients, to pass through the endothelium.<sup>4</sup> The strong negative charge of the glycoprotein and proteoglycan extensions repels larger molecules, like albumin and cholesterol, and prevents them from penetrating the endothelium.<sup>1</sup>

### ▶ Glycocalyx Damage and Cardiovascular Consequences

- ▶ With so many functions for vascular health, it probably comes as no surprise that a compromised eGCx can have serious health consequences. In fact, “endothelial glycocalyx deterioration is considered an early step in the onset of basically all chronic vascular complications.”<sup>2</sup>

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# OUTLINE

1. SKIN
2. SINUSES
3. LUNGS
4. KIDNEYS
5. BLADDER

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## Section 1 SKIN

-similar to mucosal cells of GI tract and sinuses

### Fundamental Factors:

1. Specific Nutrients (vitamins, minerals, fats and protein)
2. Hormonal imbalance
3. GI Tract

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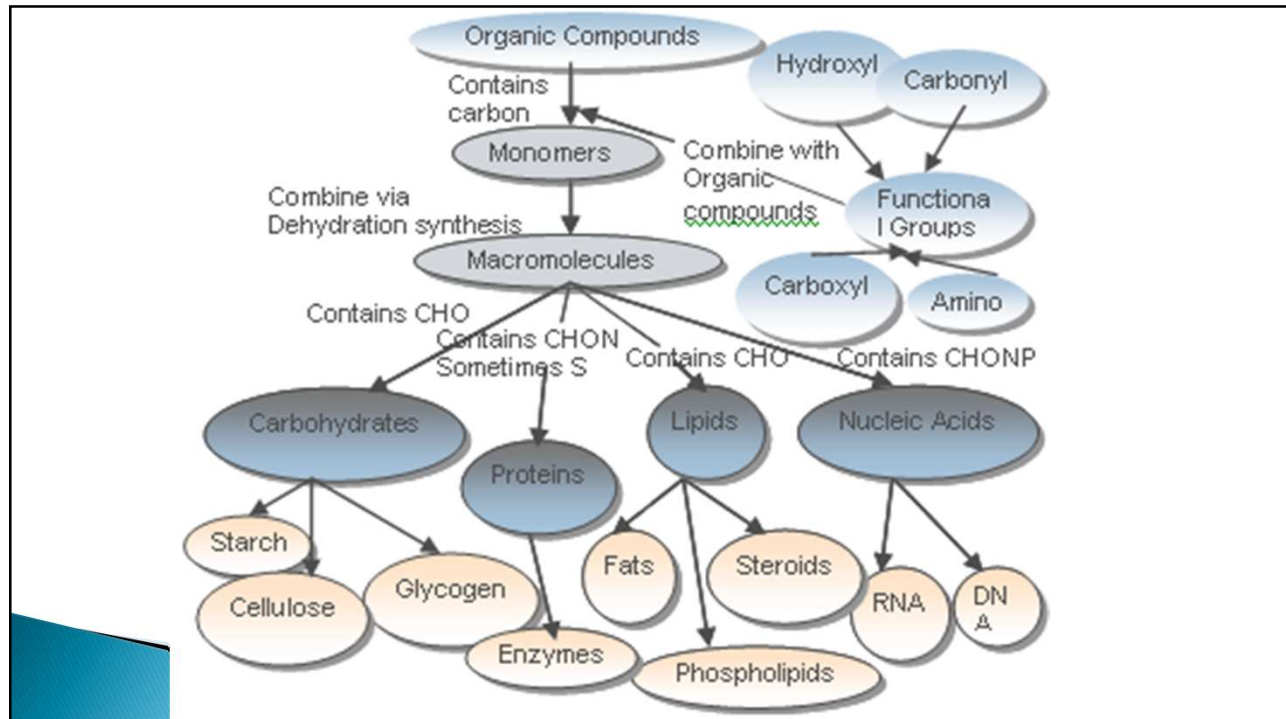
Vitamin A

- ❑ Implicated where tissues have a high turnover rate
- ❑ Bio Ae Mulsion Forte 1-10 drops - 12,500 IU per drop
- ❑ Bio Ae Mulsion, for children, pregnancy - 2,000 IU

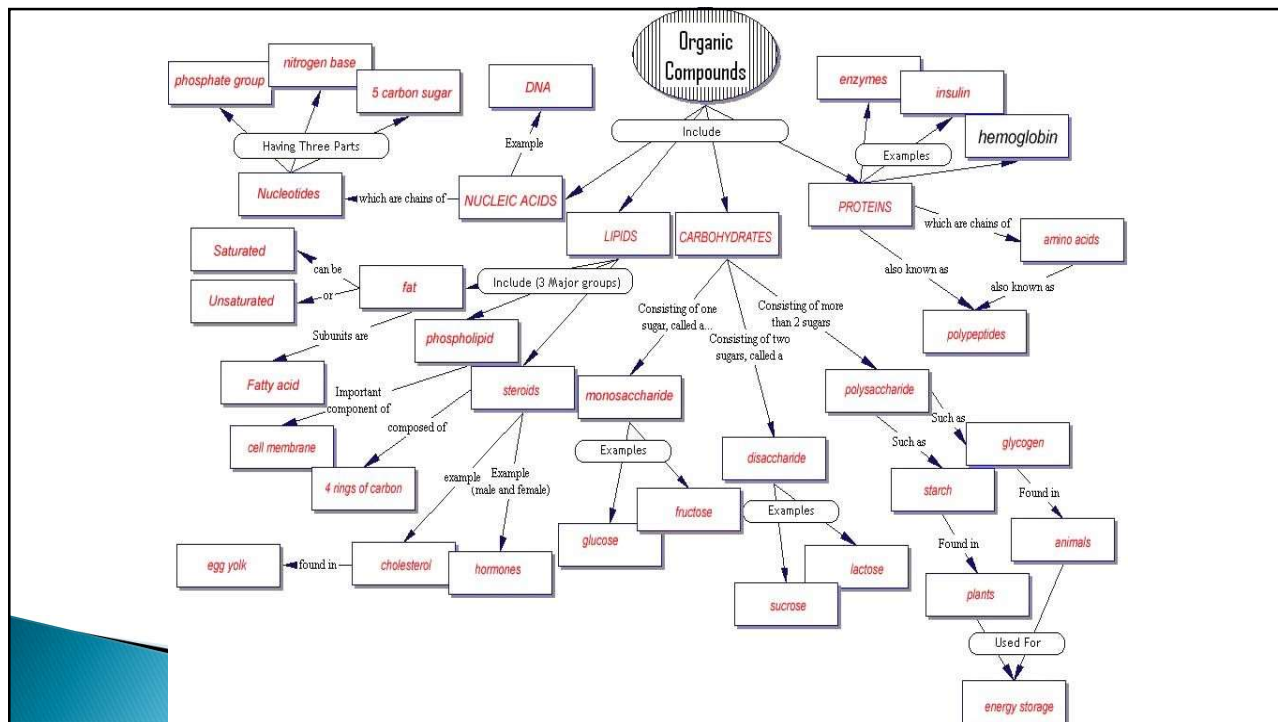
Vitamin B

- ❑ G Fractions (B2, B3, B6, B9, B12) Promote microcirculation, noted in skin problems
- ❑ Bio GGG-B
- ❑ B fractions (B1, Biotin, B6, B5) Nerve functions, fat and energy metabolism
- ❑ Bio 3BG
- ❑ Methylfolate Plus - 30% of population doesn't convert folate to the active methylated form

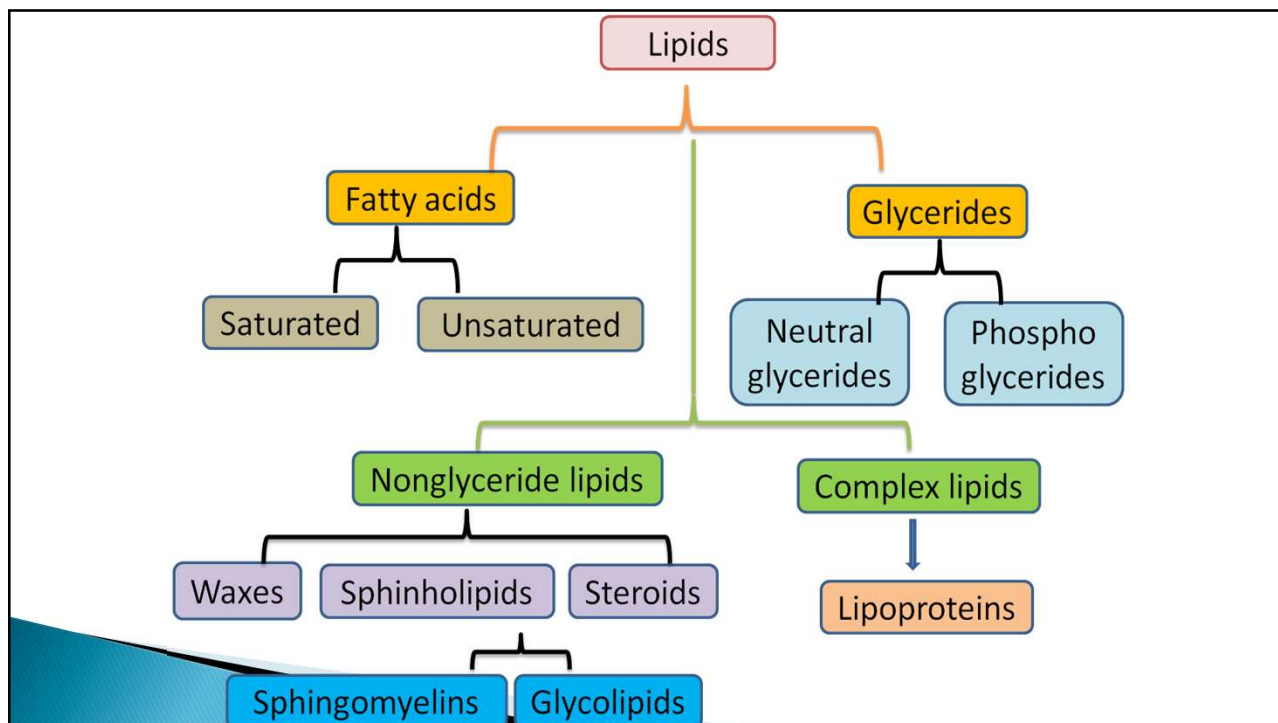
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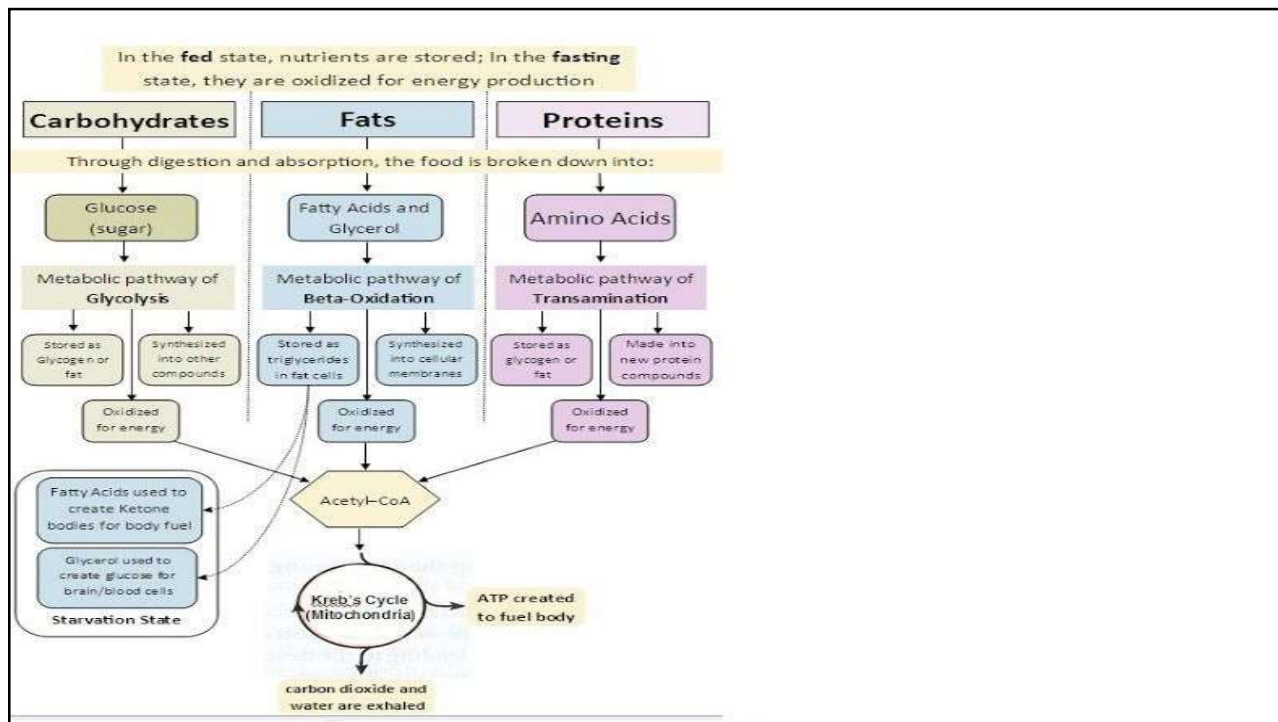
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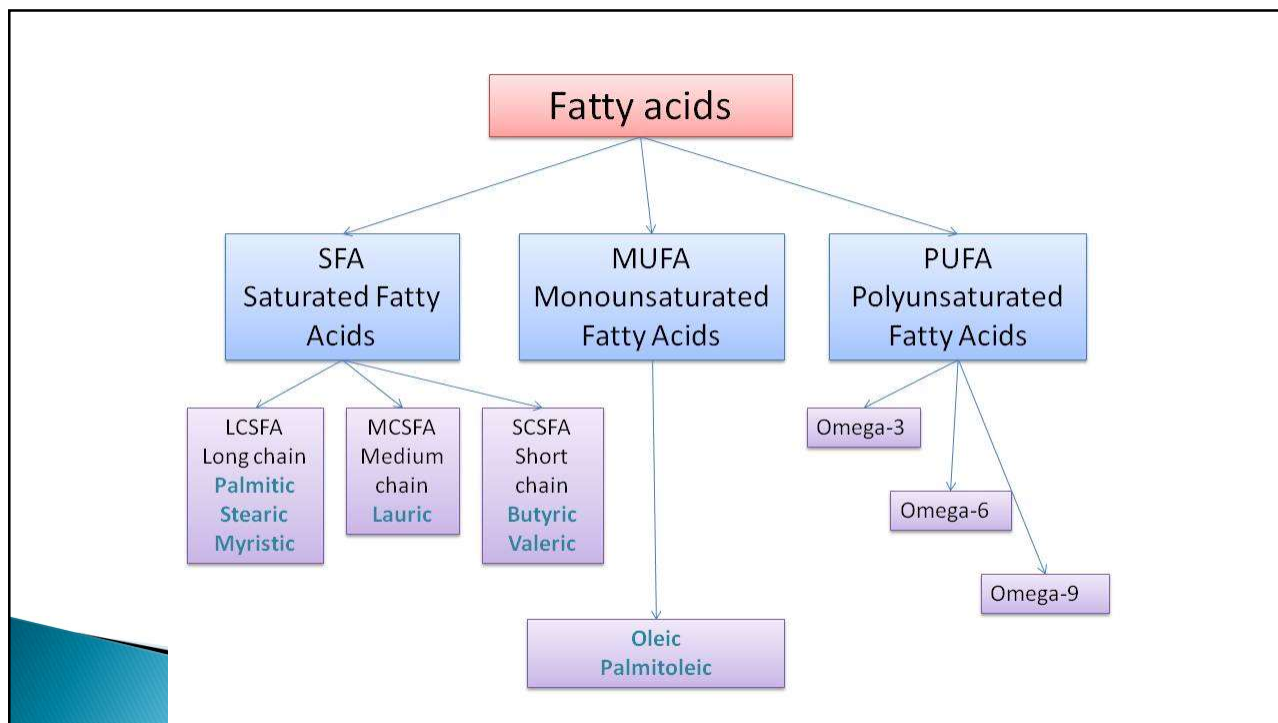
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### Why are Omega-3 Fatty Acids so Important?

- Omega 3 Fatty Acids are one of the most important nutrients utilized by your body; critical for a wide variety of body functions. The cell membranes of almost every cell in the human are made up phospholipids.
- The phospholipid structure of cell membranes are primarily comprised of Omega-3 fatty acids—mainly eicosapentaenoic acid (EPA) and docosahaexanoic (DHA). This makes Omega-3 fatty acids a critical nutrient for cell-to-cell communication and essential for health.
- **The human brain is made up mostly of fatty acids and the connections between nerve cells are 80% fatty acids.**
- DHA makes up over 90% of the n-3 PUFAs in the brain and 10%-20% of its total lipids. DHA is especially concentrated in the gray matter
- Modern food production and the intrinsically unhealthy and stressful nature of life in the developed world make our diets woefully deficient in Omega-3 fatty acids. Omega-3 fatty acid deficiency can be a major cause of health problems.

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### EPA Omega-3 acts as a 'inhibitor' to the Omega-6, Arachidonic Acid (AA)

We care about this because AA is a source of several cytokines.

EPA and AA compete for the same enzyme in your body - it's called **delta-5-desaturase**.

**The more EPA you have the less enzyme you have for producing AA. So more EPA means the more you inhibit or suppress the production of AA. And that keeps your body in balance.**

It is like a musical chairs. If EPA gets the chair, AA loses.

**Wouldn't DHA work just as well?**

No. DHA does not inhibit AA. Why? Because DHA is a larger molecule and its structure simply won't allow it.

All this has to do with what's called the Eicosanoid pathway. And Omega-3 and Omega-6 can affect these same enzymes.

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Several studies have shown that reducing total fat intakes doesn't reduce cardiovascular mortality.

Lyon Diet Heart Study

Why was this 4-year study suddenly paused after just 1 year?

French scientists gathered 600 people who'd had heart attacks.

Half of them were put on a 'Mediterranean Diet' low in Omega-6 and high in Omega-3. (**Experimental Group**)

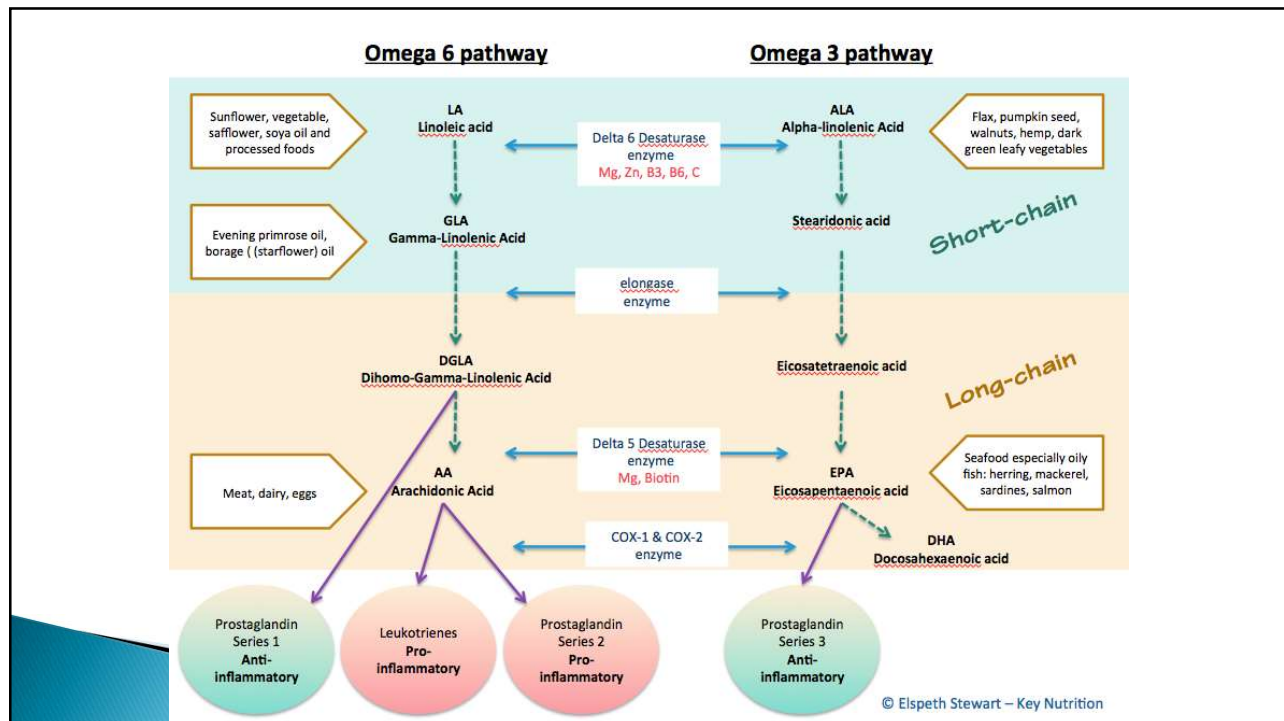
And the other half was put on a 'prudent' diet with no dietary advice from the scientists. (**Control Group**)

**What they found out was remarkable:**

- There was NO DIFFERENCE in cholesterol levels between groups
- There was a 70% reduction in death in the Mediterranean Diet Group (Low Omega-6 + High Omega-3)
- Cardiovascular deaths were decreased by 76% in the Mediterranean Diet Group
- Stroke, pulmonary embolism and angina were also lower in the Mediterranean Diet group

The study produced such stark differences in results that the scientists felt it was unfair to those in the Control Group!

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## EFA

### Myth:

Omega-6 fats are inflammatory, Omega-3's are anti-inflammatory

Omega-6 fat is “bad” because the **most abundant source of it in our diet is heated vegetable oil**, thus susceptible to oxidation, and contributes to oxidized lipids in our blood.

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## EFA products:

- EFA SIRT Supreme 3 bid
- Optimal EFA
- Biomega 3 liquid and softgels
- Blackcurrent Seed Oil
- Evening Primrose Oil

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Other nutrients:

- Bio C Plus
- MSM + Mo Zyme Forte
- Zn Zyme Forte
- Bio-Cyanidins (capillary fragility)
- Bio FCTS (bioflavonoids, green tea, quercetin)
- Ca/Mag Zyme
- Liquid Iodine Forte
- Kapparest – inflammation

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### HORMONAL IMBALANCE :

#### ❖ Thyroid

- TSH
- Free T3
- Free T4
- Reverse T3
- Thyroid Antibodies

#### ❖ Adrenal

- DHEA
- Pregnenelone
- Cytozyme AD
- ADB5
- ADHS

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## GI Tract

- Constipation
- Yeast
- Parasites
- Probiotic Deficiency
- Inflammation
- Diet modification
- Lifestyle modification

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## 4 STRATEGIES FOR GI WAR

**Starve, Kill, Eliminate, Restore**

### 1) STARVATION

- Diet, free of processed food

### 2) KILLERS:

- ADP
- Dysbiocide
- FC Cidal
- Caprin

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### 3) ELIMINATION:

- Mg Zyme
- Lax Ease
- Vitamin C tolerance
- Colonics

### 4) RESTORATION/HEALING:

- BioDoph 7
- Butyric CalMag
- IAG
- EFA

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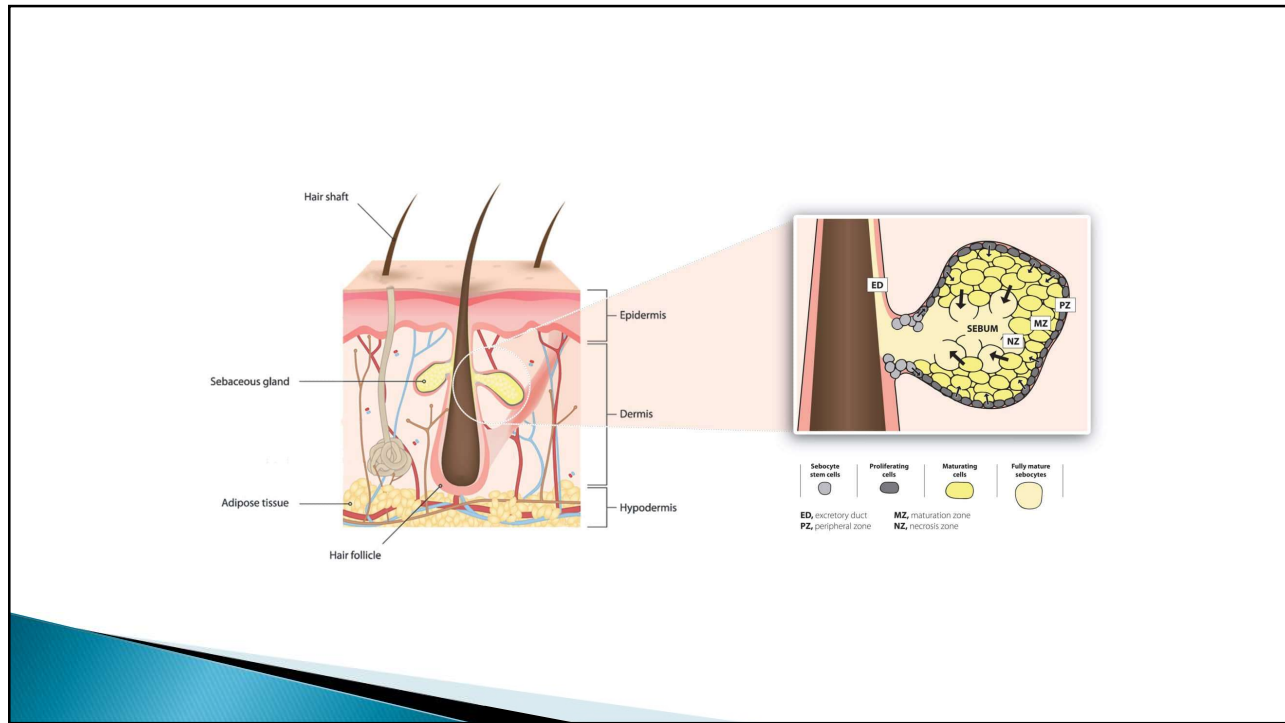
## Acne

Eliminate all dairy!

- Commercial dairy products promote allergies, which can cause inflammation
- Commercial dairy contains hormones promoting hormonal fluctuations

If dairy is not the culprit, eliminate gluten, which can also exacerbate acne

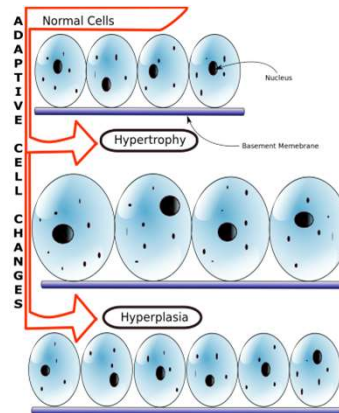
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## Acne

- ▶ Androgens (testosterone, DHEA) are stimulatory to the sebaceous glands
- ▶ Sebaceous glands can hypertrophy blocking the gland opening (fluid retained) leading to white heads, black heads, and cysts
  - This attracts bacteria



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## Acne

- ▶ Estrogen / progesterone imbalances contribute to female acne
  - Reduce with detox program
  - Topical progesterone cream
- ▶ Elevated testosterone in women can lead to acne
  - ▶ Usually liver problem
- ▶ Inappropriate conversion of testosterone to dihydrotestosterone in adult men / women can lead to acne
  - Some people are more susceptible to these effects of DHT on scalp hair based on variations in their androgen receptor (AR) gene.
  - Palmetto Plus Forte (2-6 qd) inhibits conversion of testosterone to dihydrotestosterone

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## Acne

- ▶ Iodine
  - Use topically as well as internally
  - Thins secretions
  - Reduces fluid buildup
  - Antiseptic
  - Anti-inflammatory
- Liquid Iodine Forte – use 1-2 droppers full tid in pure water internally or topically
- \*\*water containing chlorine or fluoride can deactivate iodine\*\*

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## Acne

- ▶ When food is not digested properly and inflammatory / allergic conditions persist:
- ▶ Hydro-Zyme 2-4 per meal
- ▶ Beta-TCP 2-4 per meal
- ▶ Bromelain Plus CLA 2-4 per meal
- ▶ Constipation increases toxic load, inflammation, immune reaction, endocrine imbalances.
  - Consider NutriClear Plus 15-day detox, Bio Detox Packs, Colon Plus Caps, Bio Fiber Complete

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## Burns

- ▶ Broken skin quickly loses fluids to evaporation. Hydrate well!
- ▶ To support tissue healing:
  - BioProtect - antioxidant - 2-4 qd
  - Bio-GGG-B - 6-12 qd
  - Bio Ae Mulsion Forte - 2-10 drops qd
  - Intenzyme Forte - 10 tid
  - Whey Protein Isolate - casein-free whey, IgG, lactoferrin, sulfur containing amino acids - promote glutathione levels
  - Cytozyme THY - thymus tissue helps skin heal and regenerate

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## Burning/tingling hands/feet

- ▶ Associated with liver or biliary congestion
- ▶ Avoid artificial fats / oils
- ▶ Liver detox

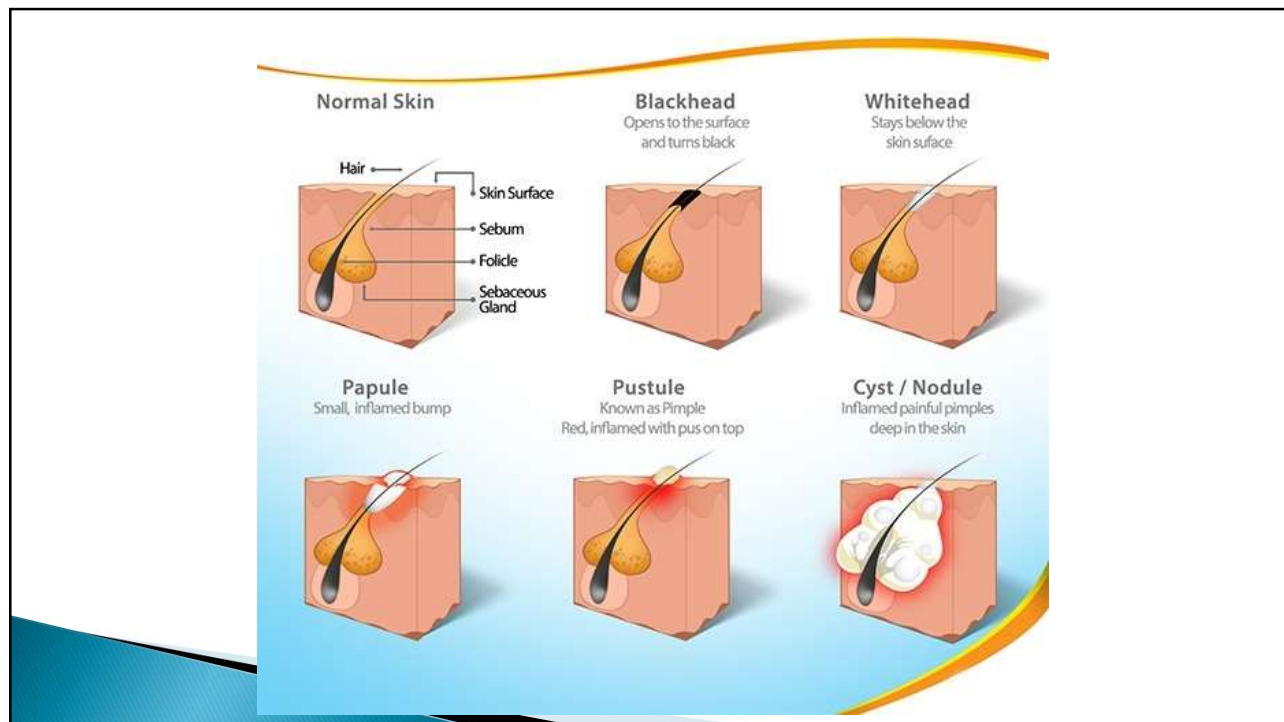
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## Capillary Fragility

- ▶ Bleeding gums, bruising, broken capillaries, bloody nose, etc.
  - Bio Cyanidins - 2-4 tid
  - Bio FCTS - 2-4 tid, supports capillary integrity
  - Bio C Plus
  - C/Cal/Mag Powder - 1 tsp tid

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## Cysts

- ▶ Closed, sac like formations that contain consolidated fluid material forming a hard lump under skin
- ▶ Can become red and infected
- ▶ Consider:
  - Bromelain Plus CLA - 8 tid between meals - promotes dissolving plugs
  - Beta-TCP - 2-3 tid - helps digest/eliminate fat
  - Bio Ae Mulsion Forte - 10 drops qd for one week
  - Iodizyme HP - 1 qd - thins sebum
  - Liquid Iodine Forte - topically

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## Dermatitis and Eczema

- ▶ Immune reaction
- ▶ Treatment should balance adaptive immune system (cytotoxic T lymphocytes and antibody producing B lymphocytes)
  - Bio-GGG-B, 2-3 tid
  - Blackcurrant Seed Oil, 6-9 qd
  - Bio FCTS, 2-6 qd
  - Bio Ae Mulsion Forte
  - Histoplex or Histoplex AB, 3 tid
  - KappArest, 4 tid

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## Gray Hair

- ▶ Genetic factor
- ▶ Cells in the hair bulb produce  $H_2O_2$  (hydrogen peroxide), which with the help of catalase is broken down to  $H_2O$  and  $O_2$ 
  - With age, levels of catalase decline, which allows buildup of  $H_2O_2$ . This destroys melanocytes that produce pigment of hair. (Oxidation theory.)
- ▶ Study links elevated innate immune response to reduction in melanocyte stem cells
  - <https://doi.org/10.1371/journal.pbio.2003648>
- ▶ Stress has also shown to decrease melanocyte production
- ▶ Theory of mineral imbalance leading to premature graying

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## Gray Hair

- ▶ Consider minerals and antioxidants for premature graying:
  - Multi-Mins / Multi-Mins Iron&Copper Free, 3 tid
  - Dismuzyme Plus, 2 tsp tid or 3 tabs tid
  - BioProtect, 2 caps tid

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## Canker sores, Herpes, Shingles

- ▶ UltraVir-X, 4-9 caps qd
- ▶ L-Lysine HCl, 3-6 caps qd
- ▶ IAG, 1 tsp tid
- ▶ C/Cal/Mag Powder, 2 tsp tid

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## Scarring

- ▶ Nuclezyme-Forte, 2-4 caps tid
  - Originally designed as a vitamin/mineral multi for hep with memory support and brain function in seniors
  - Contains RNA, DNA, glutamine, B complex
  - Promotes tissue healing
  - Reduces scarring post surgery
  
- ▶ Bio E Mulsion Forte - use topically on scars

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## Warts

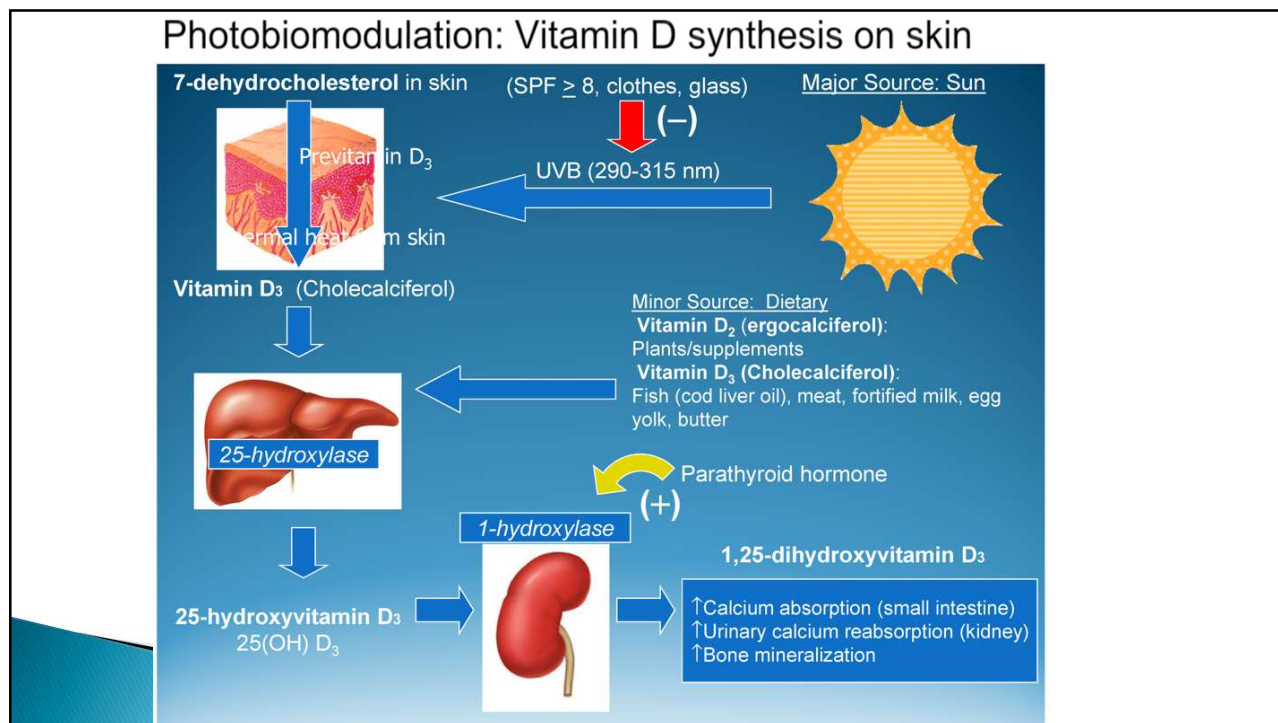
- ▶ Warts are typically caused by HPV
  
- ▶ KappArest - empty onto band aid and apply over wart. Wear constantly for up to two weeks.
  
- ▶ Multi Mins, Basic Nine
  
- ▶ Bio-GGG-B, 6-9 tablets qd for 2 months
  - Shown to eliminate warts

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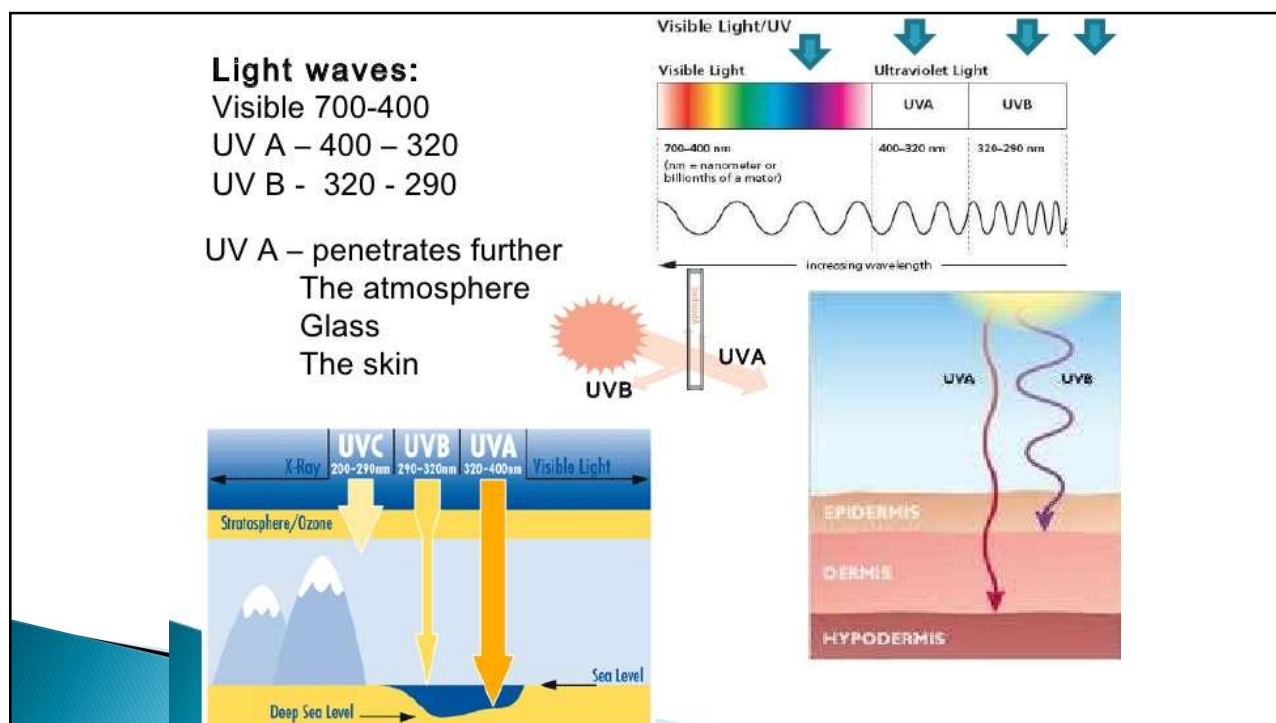
## Photobiomodulation

- ▶ Photobiomodulation therapy utilizes non-ionizing electromagnetic energy to trigger photochemical changes within cellular structures (i.e. mitochondria) that are receptive to photons.
- ▶ The mitochondrial enzyme Cytochrome Oxidase C is a chromophore, which accepts photonic energy at specific wavelengths. A chromophore is the part of a molecule that is responsible for its color.
- ▶ Stimulated Cytochrome Oxidase C in turn increases levels of ATP synthase, thus increasing ATP production.

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## Photobiomodulation therapy

- Increases collagen production
- Increases fibroblast production
- Increases circulation
- Protects cells from damage
- Stimulates cells by increasing RNA and DNA synthesis
- Stimulates angiogenesis (new blood vessel formation)
- Reduces inflammation
- Increases lymphatic drainage
- Increases phagocytosis
- Increases production of nitric oxide
- Reduces excitability of nervous tissue
- Improves facial texture
- Reduces fine lines
- Reduces wrinkle severity

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- ▶ “Energy absorption is the primary mechanism that allows light from LASER or LED to produce biological effects in the tissue. Light absorption is dependent on wavelength and the main tissue chromophores (hemoglobin and melanin) strongly absorb wavelengths shorter than 600 nm. For these reasons, there is a therapeutic window in the optical spectral range of red and near infrared, wherein the efficiency of light penetration in the tissue is maximum”

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- ▶ “The reviewed studies, however, have shown that LED light can be as effective as LASER, since both have similar biological effects, with no significant difference between them. The cellular response to photostimulation is not associated with specific properties of LASER light, such as coherence.<sup>96</sup> According to Karu, the property of coherence is lost during the interaction of light with biological tissue, not being thus a prerequisite for the process of photostimulation or photoinhibition.”

- ▶ Chaves, M. E., Araújo, A. R., Piancastelli, A. C., & Pinotti, M. (2014). Effects of low-power light therapy on wound healing: LASER x LED. *Anais brasileiros de dermatologia*, 89(4), 616-623. <https://doi.org/10.1590/abd1806-4841.20142519>

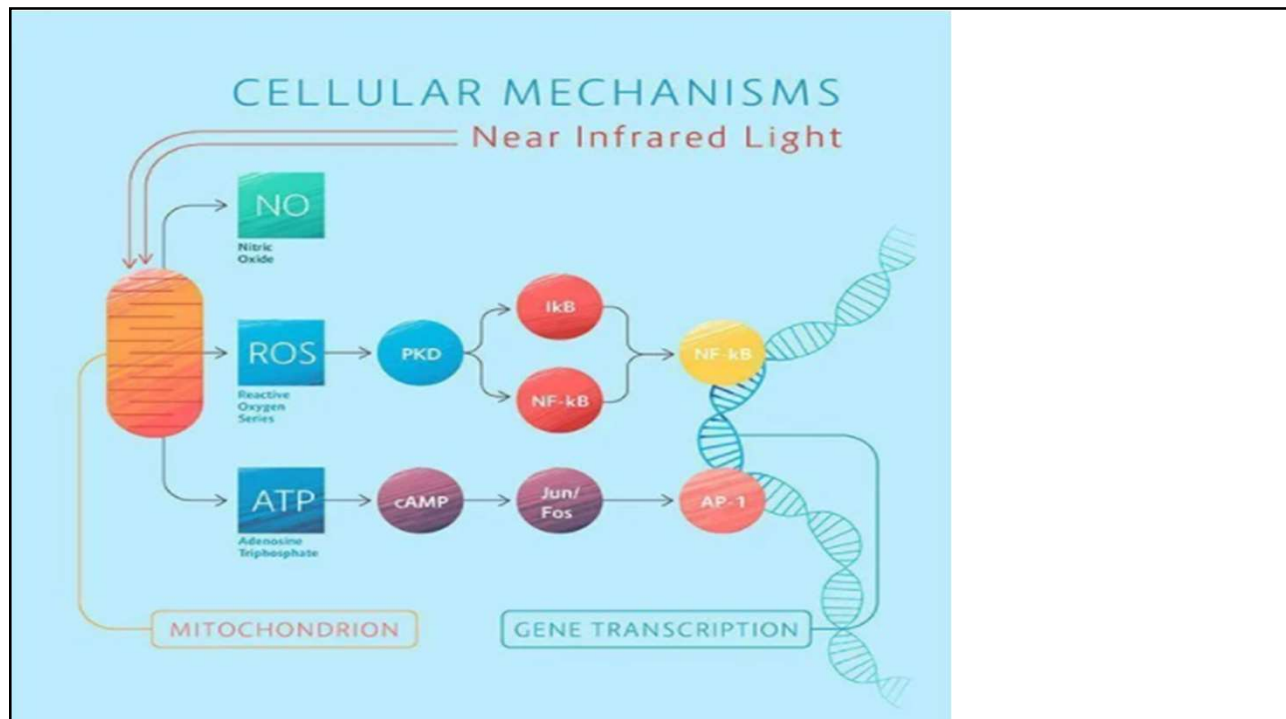
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## Low-level Laser Therapy

- Typically uses red and near infrared light
- Much lower in energy than lasers used during surgery
- Laser therapy works on the cellular level by acting on mitochondria to increase **ATP production**, release **nitric oxide**, increase blood flow, and activate signaling pathways as well as activating stem cells. This allows for faster healing by increasing the rate of collagen production, DNA, RNA, and blood vessel repair.

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## Low-level Laser Therapy

- ▶ “In dermatology, LLLT has beneficial effects on wrinkles, acne scars, hypertrophic scars, and healing of burns. LLLT can reduce UV damage both as a treatment and as a prophylaxis. In pigmentary disorders such as vitiligo, LLLT can increase pigmentation by stimulating melanocyte proliferation and reduce depigmentation by inhibiting autoimmunity. Inflammatory diseases such as psoriasis and acne can also benefit.”
- ▶ Avci, P., Gupta, A., Sadasivam, M., Vecchio, D., Pam, Z., Pam, N., & Hamblin, M. R. (2013). Low-level laser (light) therapy (LLLT) in skin: stimulating, healing, restoring. *Seminars in cutaneous medicine and surgery*, 32(1), 41–52.
- ▶ [Low-level laser \(light\) therapy \(LLLT\) in skin: stimulating, healing, restoring \(nih.gov\)](#)

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## Clinical Trial Using Red and Near-Infrared Light Treatment

- ▶ “The treated subjects experienced significantly improved skin complexion and skin feeling, profilometrically assessed skin roughness, and ultrasonographically measured collagen density. The blinded clinical evaluation of photographs confirmed significant improvement in the intervention groups compared with the control.”
- ▶ Wunsch, A., & Matuschka, K. (2014). A controlled trial to determine the efficacy of red and near-infrared light treatment in patient satisfaction, reduction of fine lines, wrinkles, skin roughness, and intradermal collagen density increase. *Photomedicine and laser surgery*, 32(2), 93–100. <https://doi.org/10.1089/pho.2013.3616>

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## Clinical Usage of LLT & LED

- ▶ Pain reduction
- ▶ Improve grip strength in carpal tunnel
- ▶ Sports injuries
- ▶ Neurorehabilitation
- ▶ Wound care
- ▶ Burns
- ▶ Skin conditions
- ▶ Muscle damage
- ▶ Inflammation
- ▶ Post-exercise recovery

Low-level Laser

LED

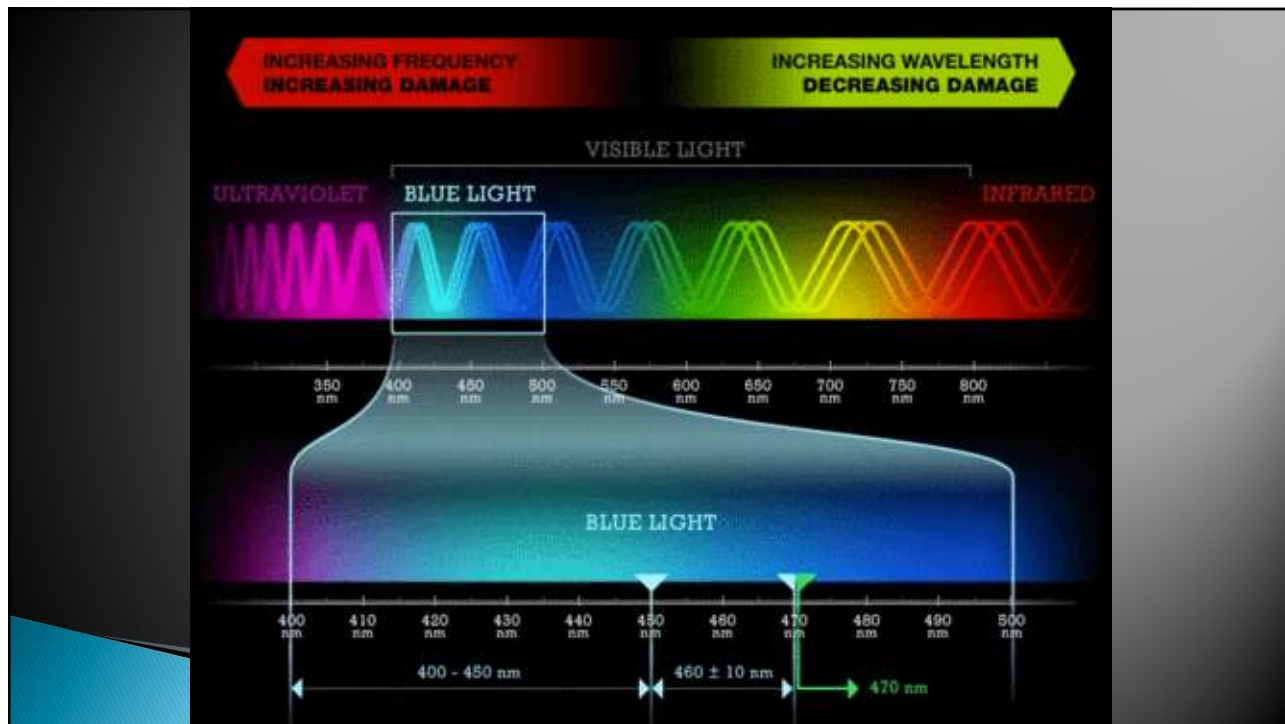
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## Bales Photonics Firefly Light Therapy

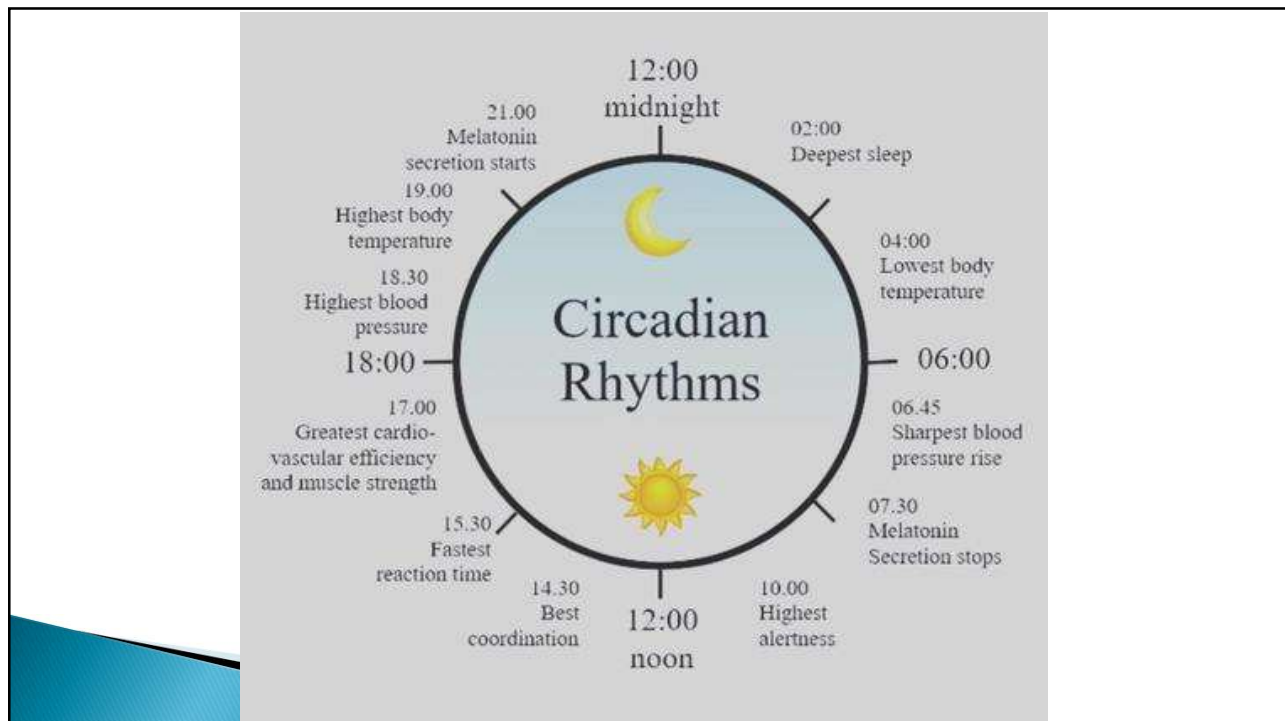
- ▶ 1. Power: 37,710 mW;  $\geq$ Class IV laser
- ▶ 2. Permeates body up to 8 inches
- ▶ 3. Multi-spectrum LEDs with multiple wavelengths: 12 blue, 5 red, and 8 near-IR
- ▶ Blue light affects skin surface and lymph drainage
- ▶ Red light penetrates tissue 3/8" and is absorbed by the blood
- ▶ Near-infrared penetrates tissue up to 8"

(the greater the light intensity, the greater the permeation depth of tissue)

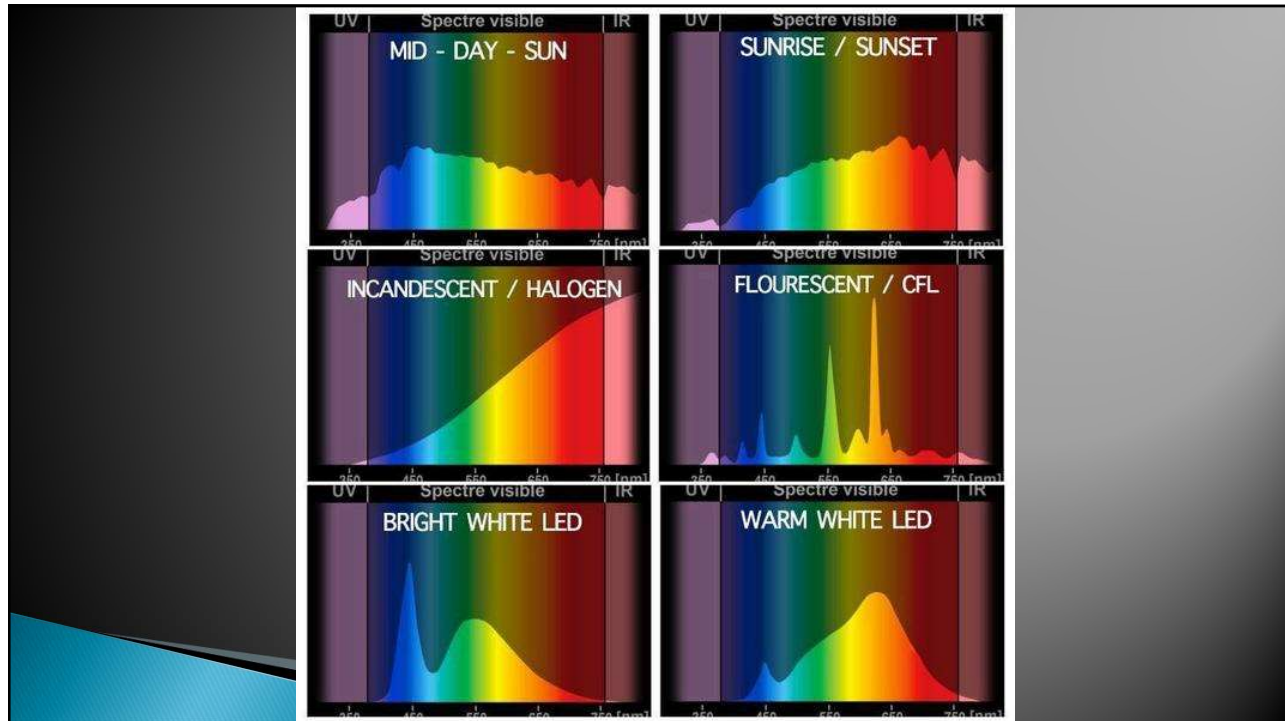
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## Section 2 SINUSES

Mucosal epithelial tissue of endodermal origin

Similarity with intestinal mucosa:

1. Similar **immune system** components
2. High in immunoglobulin **IgA**
3. Rely on **cytotoxic T cell** portion of the immune system and its innate surveillance
4. Sinus mucosal tissue produces **protective mucus** for cells bordering the outside world

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## NITRIC OXIDE – SINUSES

- ▶ Nitric oxide (NO) is a vasodilator gas produced in the paranasal sinuses and released into the nasal airways. When inhaled through the nose, NO reaches the lungs, especially during nasal breathing.
- ▶ NO plays a role in maintaining physiological **homeostasis** and regulating airway **inflammation**. It's also a potent bronchodilator that helps **lower blood pressure and increases the lungs' oxygen-absorbing capacity**
- ▶ [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8304068/#:~:text=The%20human%20paranasal%20sinuses%20are,NO%20synthase%20\(NOS\)%20isoforms.](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8304068/#:~:text=The%20human%20paranasal%20sinuses%20are,NO%20synthase%20(NOS)%20isoforms.)

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## SINUSES – HUMMING, NITRIC OXIDE

“The mucosa of the nose and sinuses release nitric oxide that can be measured easily in nasally exhaled air. Sinus epithelium produces an especially large amount of nitric oxide and the concentrations in the sinuses can reach levels of greater than 20 ppm. We recently reported that levels of exhaled nasal **nitric oxide increase dramatically if a person hums** while exhaling rather than exhaling silently. This is most likely due to a great increase in paranasal sinus ventilation caused by the oscillating sound waves. We now hypothesize that patients with obstructed sinus ostia will exhibit less of an increase in exhaled nasal nitric oxide levels.”

### Humming, Nitric Oxide, and Paranasal Sinus Obstruction

JAMA. 2003;289(3):302-303. doi:10.1001/jama.289.3.302-b

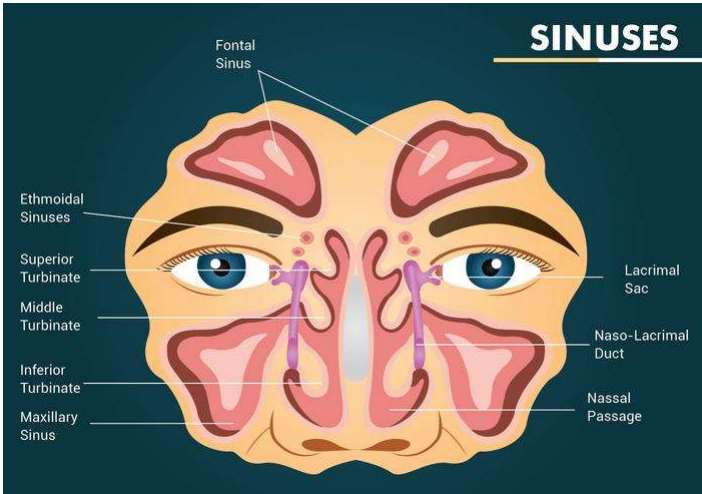
<https://jamanetwork.com/journals/jama/fullarticle/195781#:~:text=The%20mucosa%20of%20the%20nose,easily%20in%20nasally%20exhaled%20air.&text=Sinus%20epithelium%20produces%20an%20especially,of%20greater%20than%2020%20ppm.>

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**CONDITIONS:**

- ❖ Sinusitis
- ❖ Acute Rhinitis
- ❖ Excess mucus
- ❖ Decreased mucus



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### Chronic Sinusitis

Rule out chronic digestive problem.

#### Aromatic Herbs:

- ADP 4 tid with food
- Dysbiocide 3 bid
- FC Cidal 3 bid
- Berberine HCL 2 tid

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### Acute Rhinitis

Nonallergic rhinitis is a medical term that describes a set of symptoms that resemble an allergy but that occur without a known cause.

- Postnasal drip
- Runny nose
- Sneezing
- Stuffy nose

Usually, it develops in adulthood, and symptoms last year-round. Unlike allergic rhinitis, non-allergic rhinitis does not involve the immune system. About 58 million Americans have allergic rhinitis. By comparison, 19 million have non-allergic rhinitis.

75

### Acute Rhinitis

- Neutrophil Plus, 4-12 caps qd
- IAG, 1 tsp tid
- HistoPlex-AB, 3 tid
- Bio-FCTS, 3 tid
- Bio C Plus, 2 bid

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### Excess Mucus Production

- Bromelain Plus CLA, 2–4 tid
- Intenzyme Forte,
- Liquid Iodine Forte, 2 droppers full bid

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### Decreased Mucus Production

- Amino Sport, 3 tid
- Cytozyme Parotid TS (secretory and salivary glands support), 2 tid with meals
- Neonatal Multi-Gland, 2 tid with meals
- NAC

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### Section 3

## LUNGS

- Elimination organ for accumulated toxins, smoking, asbestos, smog, industrial pollution
- Absorb oxygen and eliminate metabolic waste products such as carbon dioxide
- Gases are exchanged within the fine tissue deep in the lungs

#### Symptoms:

- Chronic cough
- Wheezing
- Difficulty breathing
- Asthma
- Bronchitis
- Emphysema

Difficulty breathing is a medical emergency.  
Address it as such and send patient to the ER

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## UNDERLYING ASPECTS

1. Pathogenic organisms
2. Tissue integrity (scar tissues, fibrosis)
3. Inflammation
4. Industrial pollution and irritants
5. Allergies

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### 1) Pathogenic organisms (non-viral)

- ADP
- Berberine HCL
- BioDoph 7
- FC Cidal
- Thyme tea
- Sage tea
- IAG
- Bio C Plus

### Viral

- Kapparest
- UltraVir-X
- POA-Phytolens

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## Chest cold or Bronchitis

- ▶ First address fever
- ▶ Fever warms tissues around skeleton
- ▶ Minerals are drawn from bones to support immune system
- ▶ Calcium increases phagocytosis by WBC
- ▶ Sugar drops rate of phagocytosis!
- ▶ Body needs ionizable calcium
  - Ca/Mg Zyme, 3 tid on empty stomach

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**2) Tissue Integrity**

- Bio C Plus
- Bio Cyanidins
- Bio FCTS
- Bio Ae Mulsion Forte
- Bio D Mulsion Forte
- MSM powder
- DHEA
- NAC



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**3) Inflammation**

- Kapparest
- IAG
- DHEA
- MSM powder
- Bio C Plus
- Zn Zyme Forte



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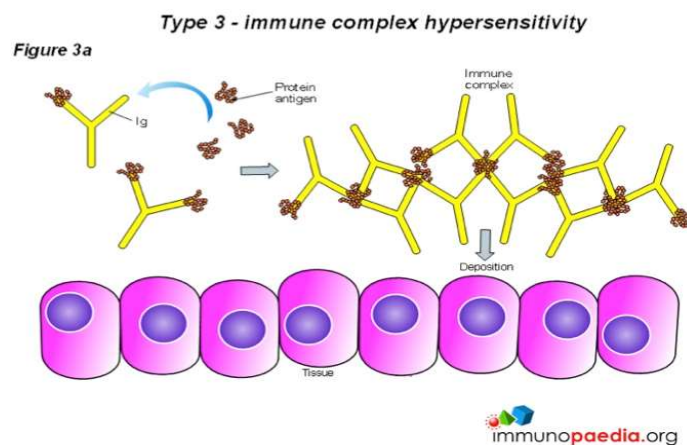
#### 4) Industrial pollution and irritants

- Think in terms of detox and chelating agents
- MSM powder
- N-Acetyl Cysteine (NAC)
- Porphyrzyme
- Chlorella caps
- Bio Ae Mulsion Forte

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#### 5) Allergies

Always think in terms of **immune complexes**



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### 5) Allergies (cont.)

- Intenzyme Forte
- IAG
- Bio C Plus
- HistoPlex AB
- Zn Zyme Forte
- Bio D Mulsion Forte
- DHEA 10mg
- NAC
- BIO FCTS

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## Secondary Organs of Elimination

Section 4  
**KIDNEYS**

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## KIDNEYS – NITRIC OXIDE

- ▶ Nitric oxide (NO) is a signaling molecule that plays an important role in kidney regulation. It helps regulate blood flow and glomerular filtration rate, and contributes to the renal handling of sodium and water. NO also modulates vascular tone, and plays a role in:
  - Autoregulation
  - Tubular transport
  - Pressure-natriuresis
  - Blunting of tubuloglomerular feedback
  - Inhibition of tubular sodium reabsorption
  - Modulation of renal sympathetic neural activity

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## KIDNEYS – NITRIC OXIDE

- Nitric oxide and other bioactive nitrogen species have pivotal roles in multiple physiological functions, including modulation of the kidney, cardiovascular and metabolic systems; in the kidney, nitric oxide has a crucial role in autoregulation and modulation of tubular transport.
- Reduced nitric oxide bioactivity has been associated with **ageing and kidney, cardiovascular and metabolic disorders**, which are often coupled with oxidative stress.
- ▶ **Nitric oxide signalling in kidney regulation and cardiometabolic health**
- *Mattias Carlström, Nature Reviews Nephrology* volume 17, pages575–590 (2021)
- ▶ <https://www.nature.com/articles/s41581-021-00429-z>

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## Lab tests to monitor Kidney Function

- ▶ Examples of updated testing for underlying components:
  - ▶ hs CRP .. Systemic Inflammation
  - ▶ Fasting glucose..
  - ▶ Fasting Insulin...blood sugar
  - ▶ HgbA1c... blood sugar
  - ▶ Vitamin D
  - ▶ Creatinine ... over 1.2 is an early indicator of BPH

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## Lab tests to monitor Kidney Function

- ▶ BUN ... also need for HCL
- ▶ eGR
- ▶ WBC...
- ▶ Urine Micro Albumin ...
- ▶ Urine pH...
- ▶ Urine... Microscopic exam to determine source of stone

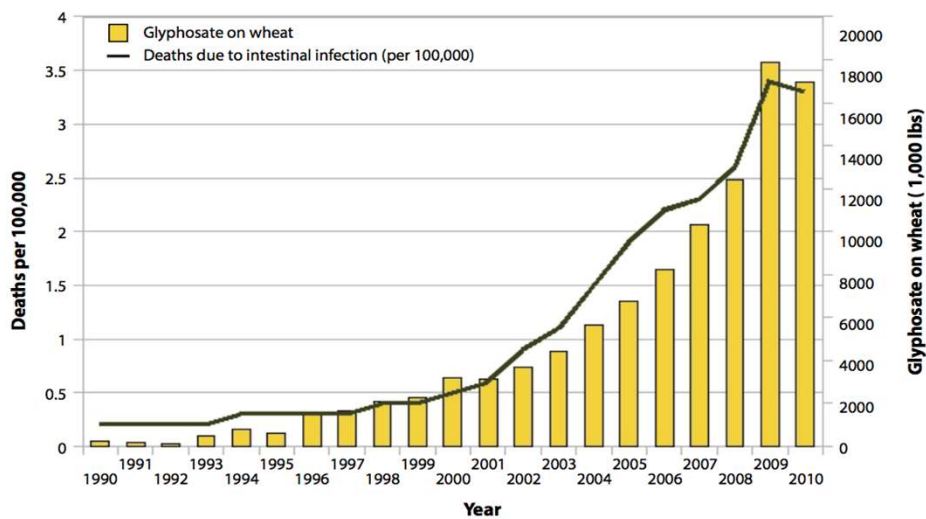
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## Kidney Disease and Glyphosate

- ▶ Round up on wheat, sugar cane, barley, flax, animal feed, etc. Common practice started in early 1990's
- ▶ Increases the drying process
- ▶ Increases the yield
  
- ▶ Glyphosate, pathways to modern diseases II: Celiac sprue and gluten intolerance  
Anthony SAMSEL and Stephanie SENEFF

93

## Glyphosate use on Wheat and Deaths to Intestinal Infection



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## Kidney Disease and Glyphosate

- ▶ Glomerulonephritis is also found in association with celiac disease (Katz et al 1979; Peters et al., 2003)
- ▶ A Swedish study showed a 5 fold increase in nephritis risk in celiac patients (Peters et al., 2003)

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## Kidney Disease and Glyphosate

- ▶ **Increased Incidence of Disease:**
- ▶ Celiac
- ▶ Thyroid Cancer
- ▶ Hospitalization for Acute Kidney Injury
- ▶ End stage Renal Disease Death
- ▶ Parkinson's

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## 4 Reasons why Glyphosate is Killing our Patients

1. Glyphosate suppresses the shikimate pathway needed to make tryptophan, tyrosine, and phenylalanine in bacteria and plants. Humans don't possess this pathway. Therefore
  - ▶ We depend upon our ingested food and our gut microbes to provide these essential nutrients.

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## 4 Reasons why Glyphosate is Killing our Patients

2. Glyphosate also negatively impacts human health through the chelation of minerals such as iron, cobalt, molybdenum and manganese. Magnesium chelated by glyphosate.
  - ▶ Depletions of these key minerals in our body and the plants we eat, limit enzymatic activity. Limit enzymes... limit life.

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## 4 Reasons why Glyphosate is Killing our Patients

- ▶ 3. Interference with cytochrome enzymes, especially P450 which are critical for detoxifying environmental toxins of all kinds.
- ▶ Thus we are not only ingesting a toxin but we limit our ability to break down other toxins.

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## 4 Reasons why Glyphosate is Killing our Patients

- ▶ 4. Glyphosate, patented as an antimicrobial, has been shown to disrupt gut bacteria in animals, preferentially killing beneficial forms and causing an overgrowth of pathogens. Evidence of disruption of gut bacteria by glyphosate is available for poultry, cattle, and swine.
- ▶ For example salmonella and clostridium are highly resistant to glyphosate, whereas bifidobacteria, and lactobacillus are killed.

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## It's everywhere ...

- ▶ Study in Mississippi found Glyphosate
- ▶ in 75% of the air and water samples tested
- ▶ Sunchips... 0.14 ppm, or 0.14 mg/kg.
- ▶ Fruit Loops...
- ▶ Found in breast milk
- ▶ Routinely found in urine, with the levels being higher in individuals with chronic diseases

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## Glyphosate is Bioaccumulative

- ▶ Glyphosate bio-accumulates in our bodies
- ▶ Mitochondrial Poison
- ▶ Studies show endocrine disruptive capability, birth defects, male infertility and **chronic kidney disease**.
- ▶ Glyphosate has been found to kill beneficial gut microbiota in chickens

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## “Glyphosate detox”

Carrier agents may be as toxic as glyphosate.  
Combination of Carrier and glyphosate never studied!

Products to include for Glyphosate toxicity

Chlorella 2 tid

Bio-Doph 7 Plus 2 at bed

Fermented and Cultured foods..2 oz bid

Nitro-Greens 1 scoop

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## “Fermented/Cultured foods ”

- ▶ What happens if you suggest them and bloating occurs?
- ▶ Slow down
- ▶ Methylation issues
- ▶ Yeast give off **Acetaldehyde** then converted to acetic acid via **Molybdenum (Mo-Zyme Forte)**
- ▶ SIBO (Small Intestinal Bacterial Overgrowth)

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## Small Intestinal Bacterial Overgrowth

- ▶ SIBO KIT
- ▶ ADP 3 – 5 tablets (depending upon patient's weight) , 3 times a day just before meals
- ▶ FC Cidal– 2 capsules, 3 times a day with meals
- ▶ Dysbiocide – 2 capsules, 3 times a day with meals
- ▶ Berberine HCL – 1 capsules, 3 times a day
- ▶ Iodizyme – HP –½ tablet daily.
  
- ▶ Use the above for two weeks, and then off for one week, complete three cycles.
- ▶ During the week the patient is off the above supplements insure the patient takes the following:
- ▶ Saccharomyces Boulardii – 1 capsule twice a day.
  
- ▶ After completing the above eight week program (two weeks on, one week off, for three cycles), insure the patient is placed on the following:
- ▶ Prebiotic–probiotic:
- ▶ BioDoph–7 Plus –1 capsule twice a day for a minimum of 60 days

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## Kidney General Support Products

- ▶ Renal Plus or Nephra–Zyme 2–4 tabs 1–4 times
- ▶ MSM
- ▶ CoQ Zyme 100 Plus
- ▶ Carbamide Plus 2 capsules tid
- ▶ Argizyme 1–4 caps 1–4 times day
- ▶ Cytozyme KD 1–2 1–4 times a day

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## Kidney General Support Products

- ▶ **Additional Considerations:**
- ▶ **B6 Phosphate** -1-2 tabs 2-4 times per day move methyl groups
- ▶ **Mg-Zyme** 4-8 capsules at bedtime
- ▶ Potassium HP with Magnesium alkalize
- ▶ **Optimal EFA's** 2-4 caps 2 or more times a day

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## Kidney Stone Support (Emergency)

- ▶ **Primary** (use for 6 days)
- ▶ **Super Phosphozyme Liquid** -
- ▶ One bottle in 4 ounces tomato juice one time daily for up to six days or until symptoms abate. Drink through a straw so the phosphorus does not contact the tooth enamel which may erode enamel at higher doses.

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## Kidney Stone Support (Emergency)

- ▶ **Super phosphozyme** 10–25 drops 1–3 times a day...
- ▶ Phosphorus as ortho-phosphoric acid is used to mobilize calcium from tissue deposits and kidney stones.
- ▶ Formulated with Inositol and riboflavin in a proprietary blend 40 mg for each 30 drops taken water. Will create an acid urine.

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## Kidney Stone Support (Emergency)

- ▶ **Super Phosphozyme Liquid** -cont.
- ▶ A sign of nutritional mineral need will be when the teeth begin to feel sensitive. Should that happen continuous therapy only when a high quality multi mineral is added such as
- ▶ **Osteo B II** 6–9 tablets a day

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## Kidney Stone Support

- ▶ **Primary Support**
- ▶ Super Phosphozyme Liquid -10-25 drops 1-3 times a day
- ▶ Nephra-Zyme 2-4 bid
- ▶ or
- ▶ Renal Plus 2-4 bid
- ▶ **Secondary Support**
- ▶ B6 Phosphate 2-4 bid
- ▶ Magnesium as Mg-zyme 4-8 at bedtime
- ▶ or Aqua Mag CL 1-2 tsp 2 or more times a day

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## Kidney Stones

Check Urine pH

If > 6.5 Acidify

Super Phosphozyme

10 drops (up to 25 drops) 3 times a day

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## Kidney Stones

- ▶ Check Urine pH use at least 8 samples to determine average pH
- ▶ If < 5.5 Alkalize
- ▶ Potassium HP plus Magnesium
- ▶ 1/2 -1 tsp 2-3 times a day
- ▶ Eliminate citrus (except lemons), alcohol, grains, dairy products, processed foods, purines (organ meats,) shell fish, legumes, pork and oxalic acid foods.

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## Oxalic Acid

- ▶ **Foods known to increase oxalate** in the urine and kidney stone formation:
- ▶ Beets, spinach, rhubarb, strawberries, nuts, chocolate, tea, wheat bran, and all dry beans, excluding lima and green beans.
- ▶ **Vitamin C** ....(theoretical) End product of ascorbic acid is oxalate... Caution using over 500 mg..
- ▶ **Limit protein**;- or 4 to 6 ounces.

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## Kidney Stones “Calcium”

Super Phosphozyme 10–25 drops 1–3 times

Potassium – HP with Mag1 teaspoon 1 to 2 times or  
K- zyme 2 to 4 tablets two or more times daily.

Aqua Mag Cl- 1–2 tsp. 2 or more times a day. or  
MG zyme 4–8 tabs at bedtime to four tabs in the morning.

Optimal EFA's 4 cap 2–3 times daily

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## Kidney Stones “Calcium Phosphate”

“Calcium Phosphate” tend to form when the pH is alkaline.

Super Phosphozyme 10–25 drops 1–3 times a day

Optimal EFA's 4 cap 2–3 times daily

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## Kidney Stones –“Urate Stones

Urate stones (Determined by Microscopic examination of the urine), tend to form in persistently low pH and where uric acid tends high.

**Folate-5-Plus or 5-MTHF plus forte 3 bid**

**B12 2000 1 per day**

**Li-Zyme Forte 2 tablets per waking hour for 10 days  
then 3 tablets tid**

**Alkalinize as needed with Potassium HP with Mag.**

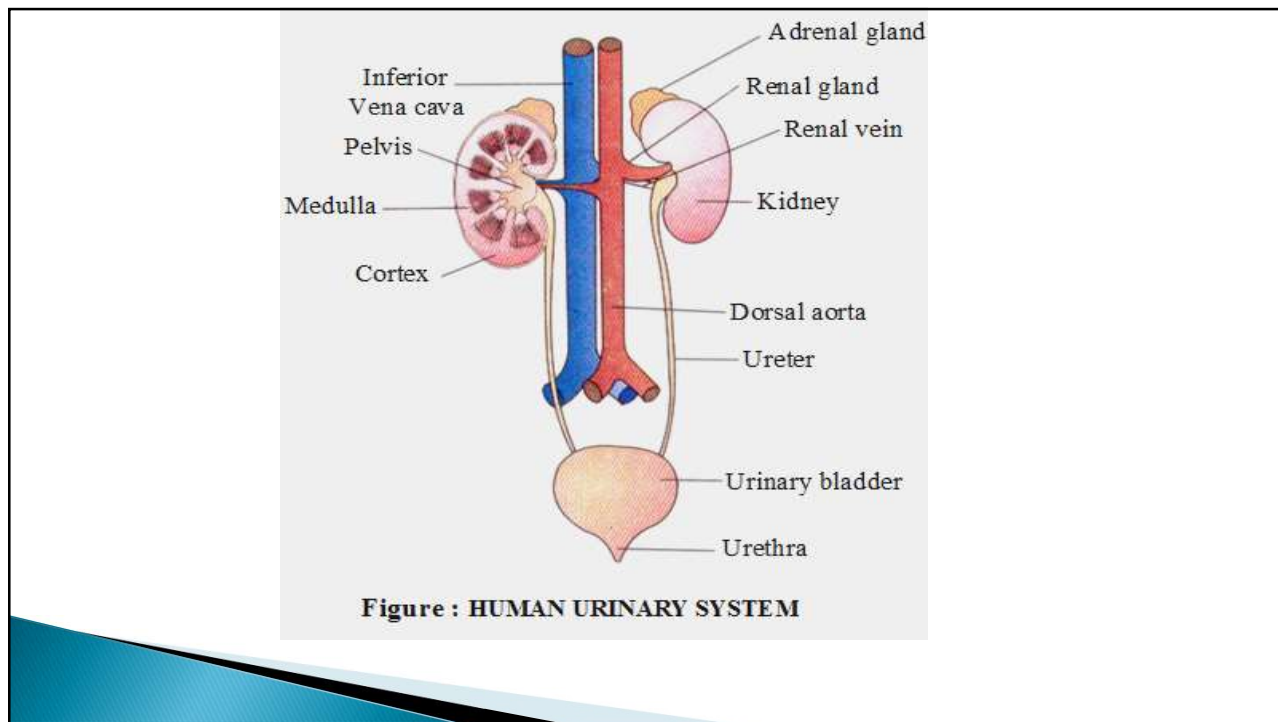
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## Kidney Dialysis Support

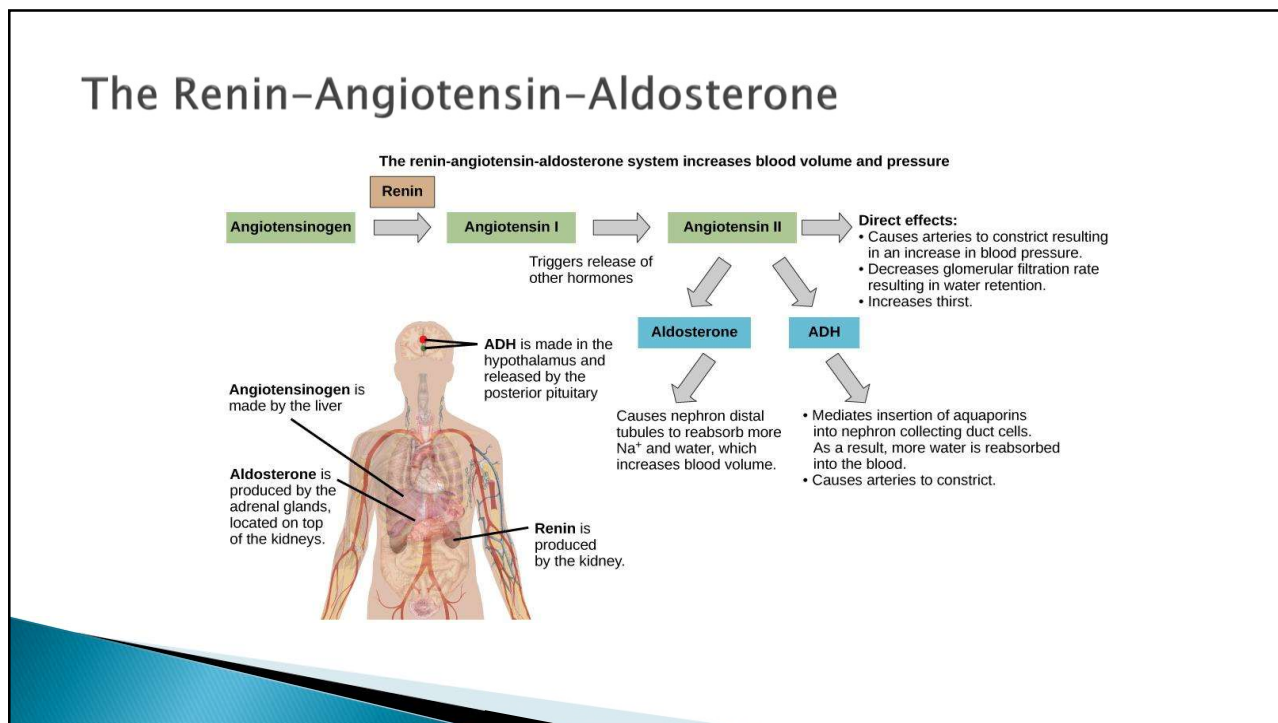
- ❑ CARBAMIDE PLUS 4 X 2
- ❑ Fe/Cu free MultiMins 2 tid to replete trace minerals
- ❑ Gammanol Forte with Frac 3 tid
- ❑ Argizyme 2 tid
- ❑ Cytozyme KD 2 tid
- ❑ EFA's 2 gram tid
- ❑ MSM 5 caps
- ❑ CoQ 100 plus 1 bid

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## Kidney summary

- ❑ Carbamide Plus, 3 bid, empty
- ❑ MSM 2 X 2
- ❑ Mo zyme Forte (with MSM), 1 qd
- ❑ IAG 1tsp qd
- ❑ NAC 1 bid E
- ❑ ARGIZYME 2 X 2
- ❑ Renal Plus, 2 bid, empty
- ❑ CoQ Zyme 100 Plus, 1 tid, with food
- ❑ Kidney Support (PB), 3 bid, empty
- ❑ Cytozyme KD, 3 bid, empty stomach

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## Secondary Organs of Elimination

Section 5  
**BLADDER**

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## Bladder Infections

- ▶ Since the bladder is wet and warm and most elderly patients are not consuming enough liquids, the bladder can be a breeding ground for infection.
- ▶ (UTIs) are recognized as the **second most common type of bodily infection**.
- ▶ UTI's can be underlying cause of unresponsive back pain, overall feelings of malaise or strange mental, emotional symptoms,

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## Bladder Conditions

- Standard American Diet – a mild inflammatory state.
- Infections trigger Cytokine release.
- Consider the flu; we experience brain fog, apathy, achy joints etc., those symptoms come from the release of cytokines during the infection process.
- ▶ Stealth Infections as a source of Inflammation

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## Leaky Bladder– 3 tiered approach

- 1) Treat for hidden infections
- 2) Increase muscle tonicity
- 3) For optimal bladder health **monitor pH** to prevent infection and over oxidation of tissue membranes.

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## Bladder Conditions

- ▶ 1) Treating for hidden infections
  - ▶ Primary
    - UT Complex 2 tid
    - IAG 2 tsp tid mixed with juice
    - ADP3 qid or 4 tid
    - BERBERINE 1 tid
    - Probiotics

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## Bladder Conditions

- ▶ 1) Treating for hidden infections cont.
  
- ▶ Secondary
  - Nephra-Zyme 2-4, two-four times daily
  - Neutrophil Plus 2-4, two-four times
  - Bio 3BG
  - Bio-Ae-Mulsion forte 10 drops -10 days
  - Carbamide Plus 3 x 2

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## Leaky Bladder- 3 tiered approach

- 1) Treating for hidden infections
- 2) Increase muscle tonicity
  - a) Teach Kegel exercises, daily contracting the pelvic floor muscles to help prevent urine loss.
  - b) Gammanol Forte with Frac, 2 tid -Muscle tone
  - c) Chondro-Plus 2 tid -connective tissue tone

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## Leaky Bladder– 3 tiered approach

1) Treating for hidden infections

2) **Increase muscle tonicity cont.**

d) Phosphorolated Thiamine.. Deleted with blood pressure medication, diabetes

**Bio3 BG 2** every hour for 10 days then 3 tid for hypotensive patients.

**Bio 3BG 1** every hour for 10days then 2 tid hypertension patients.

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## Leaky Bladder– 3 tiered approach

1) Treating for hidden infections

2) Increase muscle tonicity

3) **Monitor pH to prevent infection and over oxidation of tissue membranes.**

a) Collect at least 8 urine samples over a period of several days to assess pH.

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## Leaky Bladder- 3 tiered approach

3) Monitor pH to prevent infection and over oxidation of tissue membranes cont.

b) If the pH is less than 5.5 alkalize with **Potassium HP with magnesium**. Start with one Tsp in juice.

c) If the pH is greater than 7.5 acidify with **Super Phosphozyme liquid** 30-40 drops tid

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## Vaginal discharge

- ▶ A normal menstrual cycle is 28 days with flow lasting 4-7 days with about 2 tbsp of blood
- ▶ Pain, cramping, too much or too little blood, mood swings, etc are signs of imbalance
- ▶ Dark, heavy, painful menstruation is a sign of toxic overload
- ▶ White or yellow discharge (leucorrhea) can develop due to infections, endocrine/hormonal imbalances (elevated estrogen), poor hygiene

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## GENERAL SUMMARY

1. FATS, especially EFA's: **BIOMEGA 1000**
2. FAT SOLUBLE NUTRIENTS A, D, E, K: **BIO ADEK**
3. SULFUR COMPONENTS: **MSM, NAC, TAURINE**
4. AROMATIC HERBS: **FC CIDAL, ADP, DYSBIOCIDE**
5. NITRIC OXIDE: **NITROGREENS,**
6. PROBIOTICS: **BIODOPH 7, BUTYRIC CALMAG**
7. GLANDULARS: **CYTOZYME FAMILY**

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